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EST. 1901

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The Magazine of Safety

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EST. 1901

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It's Safe to Say

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★ TAKE SAFETY ALONG

WHEN vacation and holiday plans are in the offing, no one wants to be considered a professional crepe-hanger. At this season of the year, motor trips, cruises, journeys to the seashore, woods and mountain resorts are uppermost in the minds of millions of Americans who fortunately have a trace of gypsy in their make-up and realize the benefits of returning to duties refreshed in body and mind.

The fact remains however that days and nights which should be filled with holiday delights can bring in their wake stark tragedy of the grimmest sort. Minor pains, aches and inconveniences caused by sudden and prolonged exposure to the burning rays of the sun become insignificant when we contemplate the growing number of motor vehicle fatalities, deaths by drowning and serious permanent injuries suffered while seeking recreation and relaxation.

With a long Independence Day week-end coming up, it is shocking to contemplate the almost criminal disregard of human life which will be evidenced on our streets and highways. Just a little more than a month ago, the three-day Memorial Day holiday cost the nation 365 lives, the highest Memorial Day toll in history.

This holiday slaughter gives rise to the wonder whether common decency and ordinary courtesy are locked away in a closet when the average motorist gets behind the wheel of a car. Why must we become a nation with a split Jekyll and Hyde personality of impeccable manners and kindly consideration which seem to be reserved only for the drawing-room? Is there something about an automobile which brings on violent personality changes and renders a Lord Chesterfield a reckless boor with the manners of a mountain bandit?

Unfortunately, we all are familiar with the retiring, semi-shy individual who curses at pedestrians and feeds his ego on braggadocio the moment he shifts his car into high gear. He'll pass that jaloppy or truck on a hill; he'll skid around a curve and push the accelerator to the floor if he kills or maims everyone within twenty feet.

Many other hazards to life and health will beset vacationers during July, August and the early autumn. Even snakebite is an outdoor danger, overrated though that danger may be. According to an article by Dr. James A. Oliver in "Animal Kingdom" published by the New York Zoological Society, snakes will usually keep out of man's way unless disturbed. Moreover of about 250 different varieties of snakes in the United States, only about 15 percent are poisonous. Nevertheless, since few of us are on speaking terms with that dread 15 percent, it certainly becomes the better part of valor to exercise the utmost care.

Fortunately, it takes from 24 to 48 hours for snake poison to reach the heart but since doctors are not always within quick call in the woods or mountains, it is wise to carry an approved snakebite kit complete with fool-proof directions.

For years, the American Red Cross has publicized simple rules to avoid drowning and still vacation time water casualties bring tragedy to the front door-step of too many families. Despite the fact that those rules should be common knowledge, Monday morning newspapers continue to appear with obituaries of those who persisted in swimming alone or beyond their depth.

No one can possibly estimate the number of sunburn cases every summer since so few are reported to gatherers of accident statistics. And yet a sunburn can be just as serious and do as much damage as a burn from molten metal in an industrial foundry. It is ironic that most cases of sunburn are self-inflicted due to our national fetish for a tan which is supposed to impart a touch of glamour to man and woman alike. Only Providence itself knows the suffering and pain endured by North Americans whose brothers in the tropics have sense enough to avoid prolonged exposure to the actinic rays of the sun.

Contrary to belief, salt tablets need not be confined to steelworkers on the job. Salt lost through profuse perspiration even on vacation can be extremely dangerous and bring about heat fatigue and complete collapse. Salt tablets will not make you think you are in an air-conditioned movie palace but they certainly will enable you to stand the heat with less discomfort. The fallacy that salt tablets may cause hardening of the arteries or produce other dire results must stem from some old-wives' tale because there is no medical evidence to support such superstition.

Life itself can be hazardous enough in our daily pursuits without packing troubles in vacation-bound luggage. A return to work in the fall should be accompanied by pleasant memories rather than tears of regret, but too many holiday seekers seem to put away in mothballs their ordinary common sense. H. A.

Only BAL-guard Eye Shields give you all this!

Look at the all-inclusive features incorporated in the Bausch & Lomb BAL-guard all-plastic coverall eye shield. It provides the utmost in protection, ease of use, comfort and economy. Exceeds U. S. Bureau of Standards requirements for protection against impact, guards against dust and splash. Ask your supplier for specifications and sample, or write Bausch & Lomb Optical Co., 90507 Smith St., Rochester, N. Y.

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May be worn over regular glasses or over prescription safety lenses. Available with clear or transparent green lenses; clear, green or opaque frames.

BAUSCH & LOMB *Safety Eyewear*

(For further details, use the Reader's Inquiry Card on page 71)

by
Watchful Dan
The Safety Man

THIS RAISE NOT SO GOOD

The front office tells me workman's compensation rates have been raised. And there'll be more increases as long as the accident rate keeps going up.

The way I see it, it's a darn good thing casualty companies hire experts, not only for them—but for all of us. They're constantly uncovering hazards and recommending safety measures. If we safety people work together to cut down these needless accidents, rates will go down again.

Like the casualty companies, Bausch & Lomb has specialists on eye safety problems—fellows that know exactly how to equip workers with the right safety eyewear for any job.

In your plant, if you're on the lookout for ideas—on eye health and efficiency as well as eye safety—get in touch with the Bausch & Lomb supplier in your area. Tell 'em you want to talk to the industrial eyewear man. He'll be tickled to be of service.

-Dan

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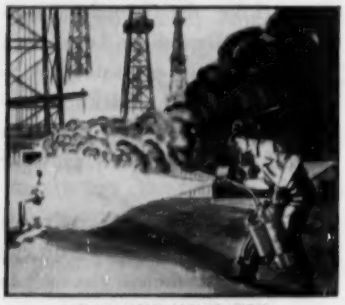

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SAFETY MAINTENANCE & PRODUCTION

VOL. 104, No. 1 • JULY, 1952

The President Sets Keynote of Industrial Safety Conference

The 1952 President's Conference on Industrial Safety emphasized the need for cooperative effort in accident prevention.

PRESIDENT TRUMAN delivered the opening address at the President's Conference on Industrial Safety held in Washington for three days early last month before an audience which brought together approximately 1,200 representatives of Federal and State governments, leaders from industry, labor, education and civic groups.

The Conference, organized by the U. S. Department of Labor in 1948 at the request of the President, emphasized the importance of reducing industrial death and injuries by proper safety practices as a means of conserving manpower for defense production. Several work-shop sessions designed to cope with major industrial safety problems were added to the Conference program this year and progress in the development of State programs to reduce industrial injuries also highlighted the meetings.

The President reminded his listeners that at the time of his first meeting with the Conference in March 1949, he proposed that we try to reduce the rate of job accidents by one-half within three years. He stated that the goal was set high purposely but until the outbreak of hostilities in Korea, we were making good progress.

Then, due to our defense program, thousands of new workers were brought into defense plants and other industries. And thousands of other workers shifted from their old jobs to new occupations. With the changed conditions, the number of work accidents began to increase—four percent in 1950 and another nine percent in 1951.

The President stated that the toll of accidental fatalities and injuries cannot be dismissed as merely dull statistics. Instead, the casualties during work point to a shocking national tragedy which is all the more

terrible because it is so thoroughly unnecessary, representing, as it does, untold human suffering and misery.

President Truman stated that early this year, following the tragic mine explosion in Illinois, he asked the Congress to enact legislation which will make the coal mines safer places in which to work. He recommended legislation authorizing the Department of the Interior to enforce compliance with Federal standards of mine safety. Under existing law, the Department can set standards, make inspections and offer recommendations, but it has no enforcement authority. It has only the power of persuasion which, the President emphasized, is not enough, as evidenced by the fact that during recent years a great number of miners have lost their lives in accidents that never should have happened. In a number of instances, mine disasters have occurred after warnings were given by Federal inspectors.

Eight-Point Program

The most important problem facing the conference, the President stated, is to bring about the actual application of safety principles already proposed. To accomplish this, he outlined an eight-point industrial safety program based upon recommendations of outstanding safety leaders.

First, accident reporting analysis should be improved. Second, manufacturers of machines should install better guards on those machines and as the makers will build the kind of machinery people will buy, we must persuade the consumer to buy equipment designed with scientifically engineered safeguards.

Third, schools, colleges and plants should emphasize safety education. Fourth, every company should have an organized safety program which is the heart of accident prevention in order to stimulate workers to exercise greater care.

Fifth, workers should participate more extensively in safety measures inasmuch as labor unions have just as important a role to play in accident prevention as does management. Therefore labor unions should see that their members participate in safety training and safety promotion.

Six, State safety codes should be modernized and made uniform. It is highly encouraging that many states are overhauling their codes and adding new ones.

Seven, public employees should have better safety programs and the President pledged his effort to bring about a reduction in the annual toll of 78,000 work accidents among federal employees.

Eighth, there must be better public understanding in support of accident prevention. Much more needs to be done, he warned and therefore we should explore and develop every opportunity for public education and safety.

The President closed his address by reminding his audience that now there is an additional incentive to the noble purpose of saving human life—the importance of conserving the skills of the nation for needs of defense production because we require as never before all our manpower resources in order to build up our defenses to achieve a permanent peace.

Industrial and Safety Leaders Speak

Secretary of Labor Maurice J. Tobin, General Chairman of the Conference, welcomed the delegates on the opening day, introduced the President and later addressed the meeting on the subject, "Safety on Every Job." Ned H. Dearborn, President of the National Safety Council discussed "Small Business Safety."

On the second day of the meeting, Harry W. Anderson, Vice President, General Motors Corporation spoke on the subject "Safety is Good Business."

Later "Public Relations Aspects of Industrial Safety" was the topic discussed by J. Carlisle MacDonald, Assistant Chairman of the Board, United States Steel Corporation.

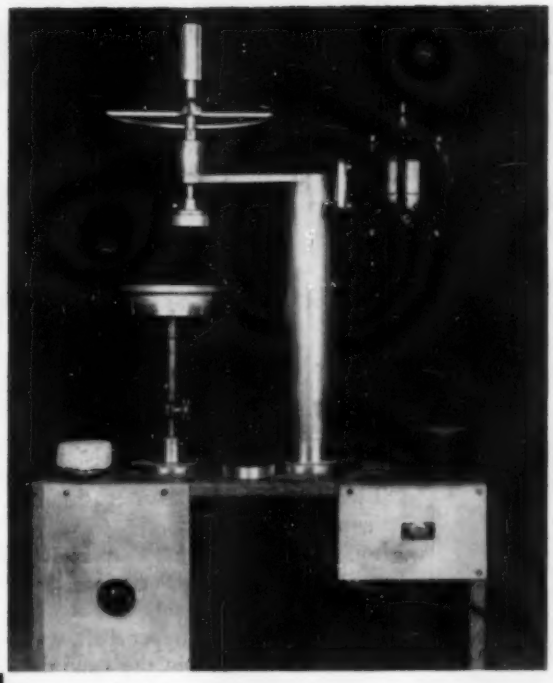
Mr. Anderson pointed out that the "alarmist" approach to safety—that is, the effort to shock people into activity by quoting statistics on the number of accidents, etc., misses the mark for several reasons. In the first place, he stated, this approach leads so easily to exaggeration and distortion. When publicity is released referring to 16,000 persons killed in so-called industrial accidents, the public gets the impression that these are largely in the manufacturing world. There usually isn't much in the story to indicate that only 17 percent of those fatalities took place in manufacturing plants and that the other 83 percent occured on farms, construction jobs, in forests, in mines, in stores and in government services,—occupational in character though they may be.

New Values for Safety

In his address on the value of public relations to safety, Mr. MacDonald stated that safety and public relations are two activities that do more than simply compliement each other. Safety, he pointed out, is the cornerstone of good public relations. If a firm has a dynamic, effective safety program, it will become known to its employees and neighbors and the plant community has a good place to work. Certainly this reputation is an essential factor in winning public respect and confidence, the speaker stated.

Mr. MacDonald pointed out that all of us, whether we represent government, labor or business, face a challenge to show the world our concern for the welfare of the individual. Behind the Iron Curtain the individual counts but little. The worker is a pawn in the game to be sacrificed, if necessary, to state and party supremacy. But here in America that man is recognized as a personal entity, and his safety is of primary consideration.

All the time, effort and money which go into safety work is certainly one of the effective answers to the evil propaganda abroad in the world which seeks to condemn America as entirely selfish in its motives. The speaker stated that men of safety are giving their own answer to those charges and, at the same time, helping to build a better tomorrow.



Apparatus used to evaluate the effect of cleaning on paints used as water-vapor barriers. The equipment consists of two vertical motor-driven shafts, one above and off-center from other. To the lower shaft, rotating at 50 rpm, was attached the test specimen; to the upper shaft, which was rotated at 100 rpm, was fastened the scrubber. A one-pound load was applied between the two shafts during tests.

Test paint films of the six types of paints investigated were soiled by applying a one-inch-wide brush coat of a standard soil (bottom). The soil was allowed to dry overnight before being subjected to the cleaning (top—specimen after one minute cleaning).

WHAT DOES CLEANING DO TO PAINTS?

Which paints prevent the transmission of moisture? Do they lose their moisture-resistance after cleaning? Does the method of cleaning affect moisture-resistance?

For information on paints and plant maintenance equipment, see pages 303–320 of "Best's Safety & Maintenance Directory"—1952–53 Edition.

IN MODERN building construction a water-vapor barrier is usually included in the wall construction to prevent condensation which would occur when the warm, humid air from the interior of the building migrates toward the outside and is cooled below its dew point. Such condensation has a degradative effect on the wall materials and may cause the formation of mold, rapid decay, and, with some types of insulation, serious loss in the insulative properties. In older buildings, where a vapor barrier has not been installed in the wall as constructed, or where such a barrier is impracticable for some reason, the interior paint may be carefully selected to act as a fairly effective water-vapor barrier.

Moisture Barrier Paints

While some paints have been studied in detail and are known to

terrible because it is so thoroughly unnecessary, representing, as it does, untold human suffering and misery.

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The President closed his address by reminding his audience that now there is an additional incentive to the noble purpose of saving human life—the importance of conserving the skills of the nation for needs of defense production because we require as never before all our manpower resources in order to build up our defenses to achieve a permanent peace.

Industrial and Safety Leaders Speak

Secretary of Labor Maurice J. Tobin, General Chairman of the Conference, welcomed the delegates on the opening day, introduced the President and later addressed the meeting on the subject, "Safety on Every Job." Ned H. Dearborn, President of the National Safety Council discussed "Small Business Safety."

On the second day of the meeting, Harry W. Anderson, Vice President, General Motors Corporation spoke on the subject "Safety is Good Business."

Later "Public Relations Aspects of Industrial Safety" was the topic discussed by J. Carlisle MacDonald, Assistant Chairman of the Board, United States Steel Corporation.

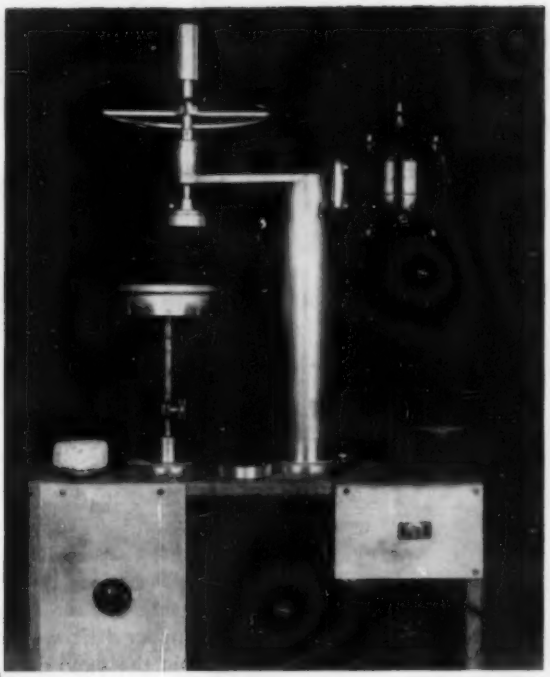
Mr. Anderson pointed out that the "alarmist" approach to safety—that is, the effort to shock people into activity by quoting statistics on the number of accidents, etc., misses the mark for several reasons. In the first place, he stated, this approach leads so easily to exaggeration and distortion. When publicity is released referring to 16,000 persons killed in so-called industrial accidents, the public gets the impression that these are largely in the manufacturing world. There usually isn't much in the story to indicate that only 17 percent of those fatalities took place in manufacturing plants and that the other 83 percent occured on farms, construction jobs, in forests, in mines, in stores and in government services,—occupational in character though they may be.

New Values for Safety

In his address on the value of public relations to safety, Mr. MacDonald stated that safety and public relations are two activities that do more than simply complement each other. Safety, he pointed out, is the cornerstone of good public relations. If a firm has a dynamic, effective safety program, it will become known to its employees and neighbors and the plant community has a good place to work. Certainly this reputation is an essential factor in winning public respect and confidence, the speaker stated.

Mr. MacDonald pointed out that all of us, whether we represent government, labor or business, face a challenge to show the world our concern for the welfare of the individual. Behind the Iron Curtain the individual counts but little. The worker is a pawn in the game to be sacrificed, if necessary, to state and party supremacy. But here in America that man is recognized as a personal entity, and his safety is of primary consideration.

All the time, effort and money which go into safety work is certainly one of the effective answers to the evil propaganda abroad in the world which seeks to condemn America as entirely selfish in its motives. The speaker stated that men of safety are giving their own answer to those charges and, at the same time, helping to build a better tomorrow.



Apparatus used to evaluate the effect of cleaning on paints used as water-vapor barriers. The equipment consists of two vertical motor-driven shafts, one above and off-center from other. To the lower shaft, rotating at 50 rpm, was attached the test specimen; to the upper shaft, which was rotated at 100 rpm, was fastened the scrubber. A one-pound load was applied between the two shafts during tests.

Test paint films of the six types of paints investigated were soiled by applying a one-inch-wide brush coat of a standard soil (bottom). The soil was allowed to dry overnight before being subjected to the cleaning (top—specimen after one minute cleaning).

WHAT DOES CLEANING DO TO PAINTS?

Which paints prevent the transmission of moisture?
Do they lose their moisture-resistance after cleaning?
Does the method of cleaning affect moisture-resistance?

For information on paints and plant maintenance equipment, see pages 303–320 of "Best's Safety & Maintenance Directory"—1952–53 Edition.

IN MODERN building construction a water-vapor barrier is usually included in the wall construction to prevent condensation which would occur when the warm, humid air from the interior of the building migrates toward the outside and is cooled below its dew point. Such condensation has a degradative effect on the wall materials and may cause the formation of mold, rapid decay, and, with some types of insulation, serious loss in the insulative properties. In older buildings, where a vapor barrier has not been installed in the wall as constructed, or where such a barrier is impracticable for some reason, the interior paint may be carefully selected to act as a fairly effective water-vapor barrier.

Moisture Barrier Paints

While some paints have been studied in detail and are known to

be effective water-vapor barriers, little is known of their effectiveness for this purpose after they have been cleaned with soaps and other cleaning agents. An evaluation of three types of cleaning compounds and six types of interior paints (conforming to applicable Federal Specifications) was therefore carried out by Edward R. Oglio and William C. Cullen of the National Bureau of Standards in cooperation with the Housing and Home Finance Agency. The paints included a white gloss enamel, an interior white gloss enamel, an interior white semi-gloss enamel, an interior one-coat flat white oil paint, a ready-mixed white flat oil paint, and an interior resin-emulsion paint.

Method of Tests

The "dry-cup" method, usually used for testing the water vapor resistance of vapor-barrier paints, was employed. In this method, the paint is drawn down on a permeable acetate sheet, and the acetate and paint films are placed, after drying and conditioning, in a specimen holder which seals the cup. Silica gel is used inside the cup as a desiccant. The assembled test cup is exposed to an atmosphere of carefully controlled temperature and relative humidity and the assembly weighed regularly. The increase in weight provides a measure of the water-vapor permeance (transmission) of the base-paint combination for the given water-vapor-pressure differential.

For the present work, 0.01-inch acetate sheet was used to support the paint films. Acetate sheet is uniform and does not absorb paint: it also lends itself well to the draw-down technique of applying the paint. Two coats of paint were applied at a spreading rate of approximately 400 square feet per gallon per coat. The tests were made isothermally at a standard temperature of 73°F with 50 percent relative humidity on the wet side of the film; zero percent relative humidity is assumed on the dry side. Experience has shown that under these conditions a film whose water-vapor permeance is less than one grain (per square foot per hour per inch of mercury pressure differential) may be considered a satisfactory water-vapor barrier.

The resin-emulsion paint and the one-coat flat oil paint did not qualify as vapor barriers because they exceeded this limit. They were therefore not subjected to the cleaning tests.

Scrubbing Tests

The apparatus used in the washing and scrubbing operations consisted of two vertical motor-driven shafts, one above and off-center from the other. The test specimen was attached to the lower shaft and rotated at 50 rpm, while the scrubber, attached to the upper shaft, was rotated at 100 rpm in the same direction. A one-pound load was applied between the two shafts.

Specimens of each paint film were soiled by applying a brush coat of a soil consisting of a mixture of metallic brown pigment, kerosene, carbon tetrachloride, white petrolatum, lubricating oil, and hydrogenated vegetable oil. The soil was applied as a one-inch strip across the surface of the paint films and was allowed to dry overnight at a temperature of 70–80°F before cleaning.

Detergents Used

The cleaning procedures consisted of combinations of washing operations using three types of detergents, with a cellulose sponge and a bristle brush as the scrubbers. In one cleaning procedure 15 milliliters of a paint cleaner containing a synthetic detergent were poured on the face of the film; this was followed by scrubbing with the moistened cellulose sponge for ten minutes. Both the sponge and the paint surface were then rinsed thoroughly with water and the operation repeated twice. A second procedure used toilet soap in place of the synthetic detergent and a third, scouring powder. Three additional procedures using the bristle brush in place of the cellulose sponge were employed on each paint. The water-vapor transmission of each of the four paints was measured both before and after each of the six cleaning procedures.

The washing and scrubbing tests did not cause any appreciable increase in water-vapor transmission of the gloss enamel and the semi-gloss enamel paints. This was true even when the film lost as much as 25 percent in thickness by abrasion during the cleaning process. This is not an uncommon occurrence in paint films and is believed to be caused by further oxidation and polymerization that occurs in the interval between initial and final measurement of the permeance.

The synthetic gloss enamel exhibited no increase in permeance during five of the six cleaning procedures. In the cleaning procedure employing scouring powder and brush, the water-vapor transmission increased about 25 percent. Similarly, the flat paint showed an increase in permeance during only one operation, that using the paint cleaner and bristle brush. This paint was abraded severely during the latter test.

General Conclusions

The NBS tests indicated that the water-vapor permeance of the conventional types of interior paint (enamels and flat paints) is not affected appreciably by cleaning, regardless of the type of detergent employed, provided a soft cleaning implement such as a cloth or a sponge is used. However, some increase in water-vapor transmission may occur after repeated cleanings if a harsh implement such as a stiff-bristled brush is used. The results also showed that some types of interior paints such as the resin emulsion and the "one-coat flat" paint may not be acceptable as water-vapor barrier materials under strict requirements.

Pictures by courtesy of the National Bureau of Standards.

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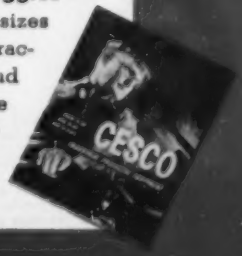

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(For further details, use the Reader's Inquiry Card on page 71)

In this western mine, acid water drippings and fumes ruin miners' cotton shirts in a few weeks. Miner at left has a Dynel shirt which he has worn on alternate days for over a year. In contrast, the cotton shirt worn by miner at right for less than one week is already beginning to deteriorate.

The Wonder Fabrics

By J. M. WOODS
Mine Safety Appliances Co.
Pittsburgh, Pa.

FEATURE

This is the third of three feature articles on Protective Clothing. The first two articles, dealing with clothing selection and new types of rubber & plastic clothing, appeared respectively in the May and June issues of SAFETY MAINTENANCE & PRODUCTION.

For detailed descriptions of protective clothing, see pages 87–242, "Best's Safety & Maintenance Directory," 1952–53 Edition.

THE problem of frequent, costly replacement of industrial work clothing has become extremely important. Ever since the arrival of the "Chemical Age" the worker and his employer have been plagued with the expense of replacing cotton and wool clothing.

It has not been too many years since the textile industry first developed a suitable fabric to solve this problem. With the introduction of rayon at the turn of the century, the period of man-made fibers was upon us. Nylon came into its own during World War II. Both research and consumer use of the synthetics have been stimulated by war and economic factors. With the deletion of the supply of silk from the Orient plus the large consumption of the natural fibers by the Armed Forces, civilian consumption was compelled to turn to other textile sources. Many textile mills are now moving towards 100% production of synthetics. One prominent mill has spent over four million dollars in 1950 on synthetics as compared to five hundred thousand in 1941.

A brief glance at the statistics shows a startling progress for the synthetics.

Consumption	1925%	1940%	1950%
Cotton	86.6	81.0	68.8
Wool	9.9	8.4	9.3
Silk	1.9	0.7	0.08
Synthetics	1.6	10.0	21.8

Silk has for all intents and purposes dropped out of the picture. Cotton has been drastically and steadily reduced, while wool continues to hold its place. But the synthetics have made their mark and are estimated to play an even greater role in the future.

The postwar period has brought to the attention of the public the

No American today needs to be told about the astonishing success of the new synthetic fibers for clothing fabrics. Perhaps less well known, however, are the advantages that these new textiles have for industrial work clothes.

Go To Work

names of Dynel, Orlon, Vicara, Dacron, Acrilan and others, amounting to 25 or more manmade fibers in the history of textiles. Du Pont, has introduced two new fabrics, Orlon and Dacron. But now new names are associated with the synthetics. Union Carbide and Carbon Corporation with their Dynel, Virginia-Carolina Chemical Company with Vicara, and the Chemstrand Corporation's Acrilan, to mention only a few, are making their bid for the market.

Production Method

Synthetic textile fibers, an "invention" from organic chemistry, are all basically produced in the same manner. The ingredients are principally long chain carbon molecules which have been modified by addition and subtraction of other organic and inorganic chemicals, such as chlorine, nitrogen, esters, etc. The long chain effect, essential for some of the resulting properties, is achieved by a process called polymerization. Hence, Orlon is spoken of as a polymer of acrylonitrile. A juncture of two polymers results in a co-polymer as Dynel, a co-polymer of Vinyl Chloride and acrylonitrile.

Once the physics and chemistry of the particular fiber has been completed, the ingredients are mixed as one might prepare pastry. Extrusion is the process employed to mechanically shape the filaments. The viscous mixture is forced through tiny orifices, called a spinneret, either into a dry atmosphere or a "setting bath," depending on the method necessary to harden the extruding solution. The resulting continuous filament fiber is then ready to be used as yarn and woven directly into a fabric form if so desired. Orlon, nylon, rayon, Vinyon are generally found in this form. Continuous filament fabrics are characterized by a silklike appearance. The individual fibers appear as wires running throughout the fabric. Because of the flexing of the individual fibers, a fabric of this type has a slight stiffness to it. Comparable to cotton, these fabrics are responsible for the reduction of cotton consumption.

However, if the continuous filaments are "chopped up" in short lengths, refined, and then spun into yarn, the resulting fabric is entirely different. This is a staple fiber form. Dynel is the staple fiber form of Vinyon. Dacron and Orlon (now appearing in the staple form) are other examples. Such a fabric is soft to the hand, has a semi-dull appearance, and is more comparable to wool.

We cannot begin to consider all the properties offered by the synthetics. Some of the more important ones for synthetics as a whole are:

Dimensional stability, wet or dry
Wrinkle resistance
Low moisture absorption
Mildew- and moth-proof
Chemical resistance
Rapid drying
Low shrinkage factors
Low flammability
Nondegradation by sunlight
High abrasion resistance
High tensile strength

However, none of the synthetics have all these properties in the maximum degree. Therefore, each fiber must be considered individually for its merits, depending on the qualities desired in end product. Neither can we consider these properties desirable in all cases. For instance, many of us know the discomfort of a nylon dress shirt on a hot summer day. Because of the low moisture absorption of the individual fibers, the wearer is continually building up a super saturated atmosphere of moisture under the shirt. Also, the high resistance to abrasion is objectional at times. Experience has

Work clothing made from the new synthetic fibers is available in many styles, such as the coveralls shown.

shown that the "hard" synthetics literally chew up the soft natural fibers when the two come in contact with each other. Nevertheless, we are yet to see nylon stockings refused by the feminine population merely because of some such small detail.

These properties have then determined for the fabric its specific end use. Dynel, Orlon, and Acrilan have desirable properties for our industrial work clothing, primarily because of their chemical resistance. Acrilan, which is essentially the same as Orlon, is now passing from the pilot plant stage into regular production. By the end of 1952, Chemstrand Corporation's new plant is expected to reach a production of nearly thirty million pounds a year. Little experience, therefore, has been had with Acrilan beyond the testing laboratory while Dynel and Orlon have had several years to accrue a reputation.

Laboratory Tests

To verify for ourselves the chemical resistance of Dynel and Orlon, we can turn to the published results of a testing laboratory. Better Fabrics Testing Bureau of New York has done extensive work in this line. Over seventy immersion-type tests were conducted by this impartial testing company to determine Dynel's resistance to chemicals at various concentrations and temperatures. Results range anywhere from no effect by 70% sulphuric at 50 degrees C. to slight bleaching by 90% hydrogen peroxide at room temperature, to partial dissolving by high oxygen content chemicals such as acetaldehyde and acetone. Tests on Orlon show good to excellent resistance to mineral acids, fair to good resistance to weak alkalis, and that they are unharmed by common solvents, oils, greases, neutral salts and some acid salts.

From these tests one might draw the conclusion that these textiles are not chemical resistant. However, it should be emphasized that they are "chemical resistant" and not "chemical-proof." Few materials are chemical-proof. Regardless of the destruction reports that may be associated with these textiles, their resistance to chemicals is far superior to those of the natural fiber class.

Field Experience

Although laboratory tests are valuable as a guide to the relative merits of synthetic fibers, they are not always indicative of actual field experience with clothing. Any discrepancy which may occur between the laboratory and the field is mainly due to the type of exposure to which the fabric has been subjected. Splashes, sprays, and vapors from destructive chemicals which would under immersion completely destroy the fabric have little or no effect in the former manner of exposure. For instance, Oleum, probably one of the most active chemicals will leave nothing remaining of Dynel or Orlon if a sample of the material is run down into a beaker full of Oleum, but on the other hand incidental splashes with which a worker comes in contact have little or no effect (except for a brown stain on the fabric) on the tensile strength of the individual fibers. Again, we must realize that such clothing is not indestructible and the wearer should remember that possible destruction can be allevi-

(Continued on page 30)

Work shirt and trousers of Dynel, full cut for freedom of movement, styled for both comfort and neat appearance.

Five months' wear and many washings left this Dynel shirt in good condition, even though the wearer was handling aluminum chloride and perchlorethylene during time.

One week's wear and one washing wrecked this cotton shirt, which was worn under exactly the same working conditions as the synthetic fiber shirt shown at left.

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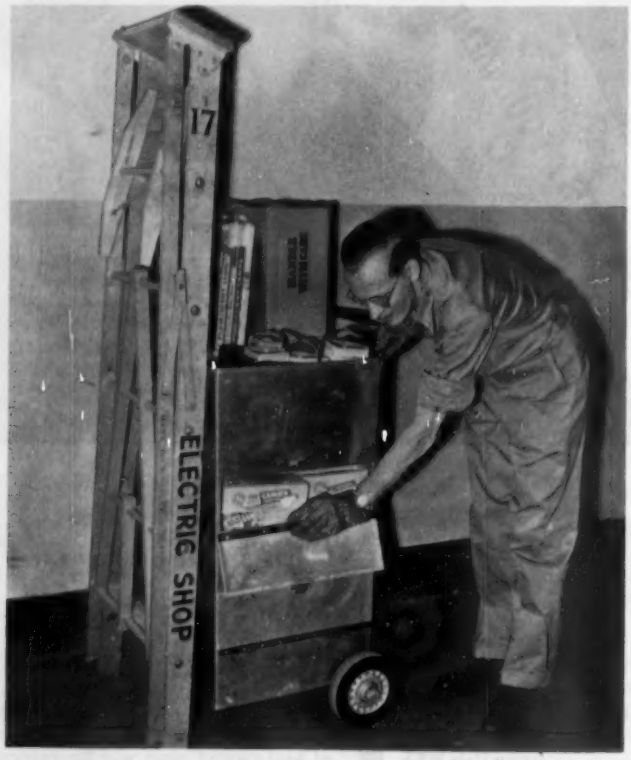
(For further details, use the Reader's Inquiry Card on page 71)

HIGH-LIGHT MAINTENANCE

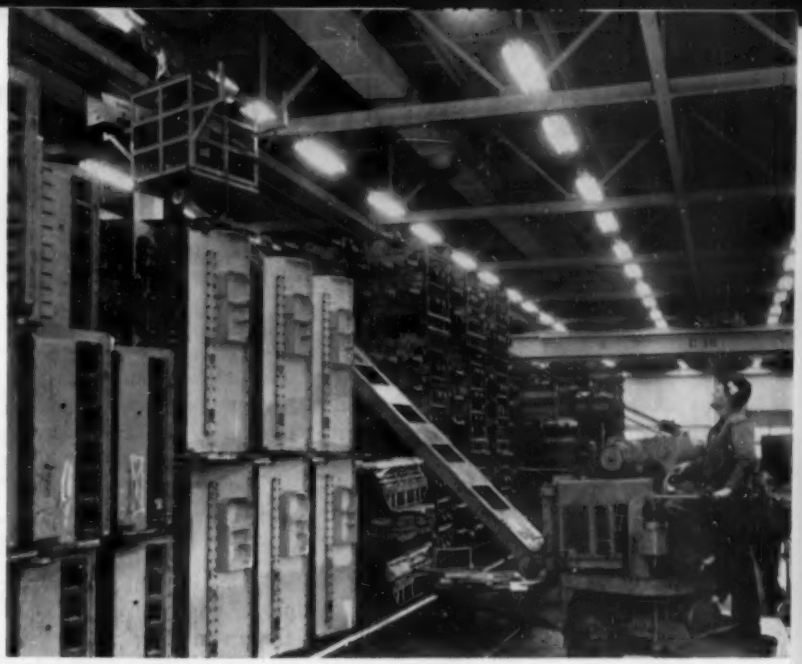
Chose your weapons for lighting maintenance. A wide variety of devices for quickly and safely reaching the fixtures in your plant are available. Each has its best use. Pick those that fit your special needs.

LAMP replacements at DuPont are simplified with this specially constructed ladder shown below. It holds all the essentials for changing any lamps in a given area. One man can handle the wheeled unit easily like a wheelbarrow. Filament and fluorescent lamps, starters, and needed tools are sorted out in the chest compartments.



POLE lamp changers are quick and safe. The holder has a suction cup for gripping incandescent lamps ranging in size from 10 to 1000 watts. Fluorescent type holders are also available. Sections can be added for changing lamps up to 30 feet in the air, and the user keeps his feet on the ground.

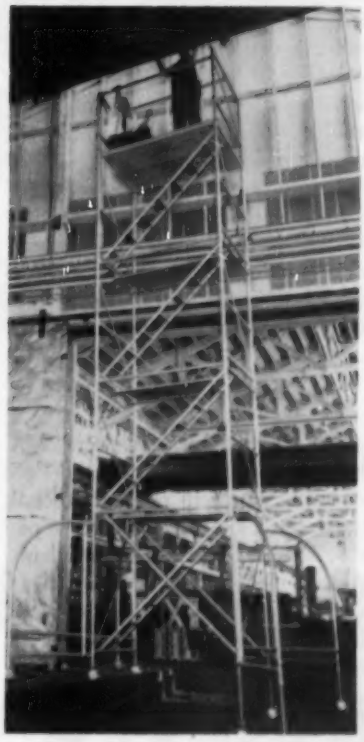
A BOOM truck speeds the cleaning of fixtures and the changing of the 16,254 lamps in this Peoria, Illinois, Caterpillar plant. Two men put in full time with this self-powered elevating platform and boom truck and with a light aluminum-tubing rolling platform that can be assembled or taken down in 5 minutes.



All pictures
by courtesy of
the General Electric Co.

PLATFORMS solve many maintenance problems. Commercially available in many types and made from wood, steel or aluminum, the steel unit shown here comes in sections for varying heights and has a guard rail for higher work. Its construction allows plenty of clearance for sliding the platform over desks, tables and machines to get at fixtures difficult to reach from a ladder. Vacuum cleaning equipment is another versatile aid in plant maintenance. Here it is used to remove dust accumulations from light reflectors. Vacuum cleaners have the advantage of collecting dust and dirt instead of merely scattering the accumulations.

THE aluminum scaffold, shown below, has outrigger legs for extra safety when lighting maintenance work is required at great heights. The extra stabilizing legs swing into position and lock. The legs adjust for uneven floors.



THE MIDWEST VIEWS SAFETY

Speakers at the 29th Annual Midwest Safety Show underscore the need for cooperative safety effort among all members of modern industry.

THE Greater Chicago Safety Council brought to a close one of the largest Safety Shows in its history upon completion of the three day meeting last May at the Congress Hotel in Chicago. Some 5,000 safety engineers, supervisors, plant engineers and personnel of approximately 800 industries in the Middle West registered at the 29th Annual Midwest Safety Show.

Nearly 1,000 persons attended the banquet session of the conference which was also the Council's annual meeting and election of officers. During the dinner 64 plaques were awarded winners in the Interplant and Interfleet accident prevention contest sponsored by the Council.

Industrial meetings for supervisors, foremen, safety directors, and general plant personnel featured sound practical information on civil defense, industrial relations, the problem of noise in industry, commercial vehicle operations, construction, training, fire prevention, material handling, electricity, industrial hygiene and many others.

A full quota of safety exhibits complimented the meetings with everything in the way of modern safety clothing, equipment, devices and educational aids on display during the four-day meeting.

Labor Cooperation

Among the speakers were Mr. M. M. Homan, Education and Personnel Department of International Harvester Company, whose topic was "Safety Discipline in Plants With a Joint Labor Management Safety Committee." He stated: "In discussing with you my subject of safety discipline and the establishment of reasonable rules and regulations for the purpose of efficiency, safe practices and discipline are, in the opinion of our Company, a definite responsibility of management. We feel very strongly that this responsibility should not be shared with a labor organization on a joint basis.

"The Harvester Company employs approximately 90,000 employees in their manufacturing operations; deals with 26 international unions in approximately 225 different bargaining units. In certain of our manufacturing plants, we have as many as 16 separate bargaining units within a single plant. As you can well appreciate, with these types of labor organizations we, as a company, are faced with a great many problems.

"We have had both good and bad situations insofar as the cooperation of labor organizations in the safety program. Where a labor union is willing to accept responsibility, indicates a real desire to work with management in the accident prevention program, and cooperates to the extent that good employee attitude and cooperation results, we have had favorable results in the safety program. In other situations where the labor organizations have been more concerned over moving in on the functions of management, the safety program has suffered as a result thereof, and in several of these cases the unions have withdrawn their support of this program. Insofar as we are concerned, if a union is not willing to earnestly support a program and aid in developing good employee attitude and cooperation, we are firmly of the opinion that *management should do the job alone.*

"Discipline and the establishment of rules and regulations in the safety program must be the responsibility of management and, in our opinion, this can never be delegated to a joint labor management safety committee. We believe, however, that if a labor union is sincere and fully cooperates in the safety program, it cannot help but aid in the attainment of our long run goal of positive discipline, and that we will find fewer occasions when it will be

(Continued on page 46)

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FOR JULY, 1952

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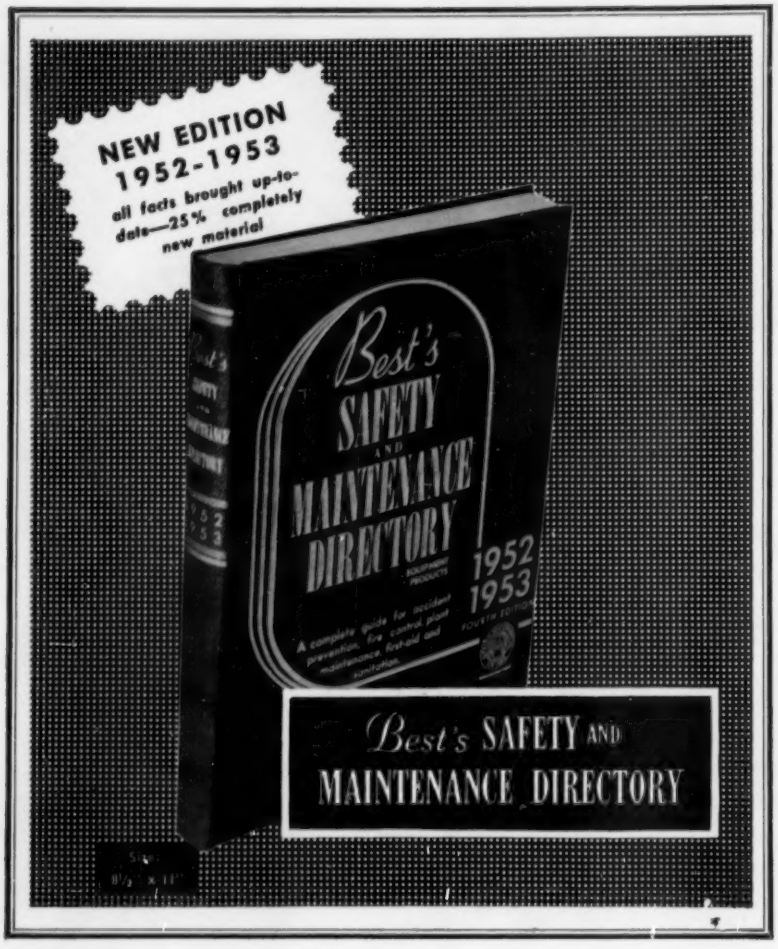

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(For further details, use the Reader's Inquiry Card on page 71)

"Careless Charlie," an almost life-size figure, was "awarded" to any department having a lost time accident during the month. Charlie was appropriately laid to rest with a wreath when the decline in plant accidents warranted his demise.

No One Wants Careless Charlie

No tears were shed at C. Schmidt & Sons, Inc., when Careless Charlie, representing lost time injuries, was laid to rest. His early demise was not by accident but by safety.

A TWO-THIRD reduction in its accident frequency rate has been achieved by C. Schmidt & Sons, Inc., Philadelphia brewer since its safety program was started in 1947. One result of this improvement was the recent award by the United Brewers' Foundation of Second Place honors in a national contest among brewers of comparative size for the year 1951. In addition, Schmidt has earned the National Safety Council's Certificate of Achievement, a new annual award, as well as safety honors from the Department of Labor and Industry of Pennsylvania for the past four years.

The company's well planned safety program got its start in January, 1947, when William A. Hipp, assistant brewmaster, was given added responsibilities as safety director. He appointed a safety committee of 12 employees which immediately set up a series of safety contests. It created "Careless Charlie," a life-sized cutout, which was placed in any department with a loss-time accident.

As the safety program developed, Mr. Hipp selected William A. Mulvenna, a bottler, shop steward and safety committeeman, as assistant safety director on a full-time basis. Both the safety director and his assistant attended classes in fire fighting conducted jointly by the Philadelphia Safety Council and Damage Control School, U. S. Navy.

"The success of our program," Mr. Hipp explains, "has been the result of a lot of work, the education and cooperation of employees, and the help of management. The officers of the company have supported us at every turn."

Safety Teams

About the middle of 1949 the whole plant was organized into a number of safety teams. Each team elected its own captain. When any team goes three months without a loss-time accident, it is given a prize which is awarded to an individual member of the team by a drawing.

The safety committee meets regularly every month to work out details of its growing program. It considers all suggestions and recommendations and presents to management a complete report of its activities. Every recommendation is written in the report and kept there permanently until acted upon.

All salaried supervisors in the plant hold meetings with the safety

All employees who face an eye injury hazard are issued safety glasses. Prescription lenses are furnished when necessary. Visitors entering bottle shop are also required to don eye protection.

All employees are members of a safety team, each team electing its own captain and selecting its own name. Teams vary in size according to type of work performed. Team scheme is used as means of conducting contests, channeling safety materials, etc. Team shown above is selecting winner of prize, which the team earned by three months without accident. Any injury disqualifies team.

director and his assistant. Outside speakers and demonstrators of safety equipment appear before these meetings. At some of them safety films are shown to illustrate a point under discussion.

All new employees are indoctrinated with the aid of a slide film "Green Hand" safety training program. All slides have been made in the brewery and represent scenes and equipment which soon become a part of the newcomers' daily business life. Dr. R. Ralph Bresler, the plant doctor, explains to the newcomer about the use of the company dispensary and its services. A display of safety equipment is shown prior to a tour of the brewery which completes the training course. A quiz follows the course to be sure the "Green Hand" understands what has been demonstrated.

A new dispensary is now in preparation adjacent to the brewery. The building is being air conditioned and fully equipped with examining rooms, physiotherapy equipment and safety offices. There will also be a photographic laboratory in it.

Schmidt presents a pin to each employee who has not had a loss-time accident for a year. Each year's pin is different from the others. The five-year pin will be gold. Ten and fifteen year pins will be presented as earned. Departments achieving a perfect yearly record receive a certificate of merit.

The company holds an annual safety banquet to which are invited all team captains, salaried supervisors, safety committeemen, department heads and officers. The employee relations director of the United States Brewers' Foundation is also a guest. "Wise Owl" certificates are presented on this occasion. These are given by the National Society for the Prevention of Blindness to workmen whose eyesight has been saved through the conscientious use of eye-protection equipment.

Visual Aids

In order to keep the interest of every employee alive in the company's safety program, posters are put on about 75 bulletin boards throughout the plant every two weeks. Photographs of safety committee meetings which are of interest to employees are mounted on easels and rotated through every department in the plant.

The safety program requires every visitor to the bottle shop to wear a visor to protect the eyes. Every employee who enters the "hot zone" —that area following pasteurization where bottles are heated—whether he is just passing through or there for maintenance work, must wear safety glasses while in the area.

Salaried supervisors attend monthly meetings at which various phases of the safety programs are considered. Meetings feature sound films, guest speakers, equipment demonstrations, etc. Here supervisory group is inspecting eye protection display.

New employees are indoctrinated by means of a "Green Hand" training program. This program consists of: (1) a twenty minute slide presentation outlining safety rules, use of fire equipment, etc., all slides being photographs in the Schmidt brewery; (2) a brief quiz on the slide presentation, enabling the Safety Department to check its effectiveness; (3) a brief discussion of the medical program by the plant physician; (4) an explanation of a safety equipment display; and (5) a tour of the brewery. Shown here are new employees visiting the brewhouse during the course of tour.

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DESIGN FOR

How a modern steel company makes safety an integral part of all its operations.

By RICHARD CHENEY

THOUGH it may be heresy, the hearty Irish safety supervisor of one large American steel company has long since gone firmly on record against leprechauns or banshees—at least on the job. When falling icicles on three different occasions last year caused lost time accidents in the company's mills he refused to believe he was jousting with any of the offspring of black fate. He set about coping with the menace in a forthright and above-board manner, and it is characteristic of him and his company that falling icicles are now no trouble at all.

To him there is nothing of the supernatural in an accident. A perfect safety record, he believes, can actually be "engineered into a steel mill," and he is getting a good chance to prove his theory in a new mill his company is now building.

Even considering the high talent for employee safety that has made the steel industry's accident rate among the lowest of all of America's heavy industries, rushing a plant with built-in safety to completion under today's emergency conditions would seem to call for a good quantity of Irish luck.

The company and the safety supervisor are not counting on luck however. Work on building safety into the new mill might be said to have started with the introduction a few years ago of a program that the company called Single Objective Safety.

Where & Why of Accidents

Under this program every accident in the steel company's mills—not just the accident that causes someone to lose working time but a minor cut or a bruise as well—is investigated by the operating department. In analyzing each accident, the operating department arrives at certain common denominators. It may find that in an entire department four operations involving only eight simple acts account for all the injuries.

With such a breakdown, the safety supervisor and his men, who have been drawn from the mill's operating department and understand the production line, may build an extra guard on some meshing gears or install additional control switches or change the lighting.

To take the case of the icicles: each icicle, an investigation showed, had dropped off the end of a steel canopy used to shelter an outside stairway. Redesigned by the safety department, canopies now have turned up ends, like ski jumps, and water goes off the sides where it cannot bludgeon passersby in its frozen state. The unruly icicles in this case were a single objective of the Single Objective Safety Program.

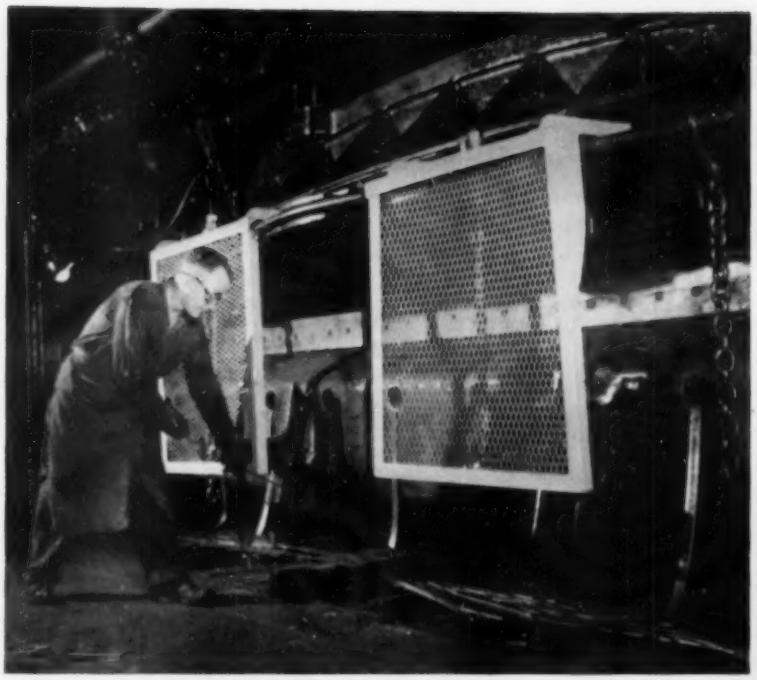
No spokesman made an across-the-board pronouncement calling on people to watch out for icicles when they had enough on their minds already, but instead the safety department isolated the cause of the accident and did something about it in concrete terms.

Outlawing the Hazard

Each of the company's mills as a consequence, might be viewed as a kind of skeleton production line with a thick encrustation of safety devices put on because engineers realized where danger lay or because an accident—perhaps nothing more than a small cut on somebody's finger—pointed up the possibility of repeated injury.

Many of the devices, evolved after hours of experiment and thought, are now taken for granted: such things as platforms carefully placed for unobstructed vision; chain curtains and screen guards to protect against flying particles from the roughing mill; double and triple and quadruple brakes on moving parts that stop a machine within a fraction of the distance formerly required; catwalks with guard rails; and strategically placed danger signs that keep passersby out of danger areas.

Others are brand new, like a rack that holds the spreader beam for the craneman. The spreader beam is a steel beam with loops of chain hanging from it on both ends. The loops go around loads of steel bars so the craneman, latching onto the



In the hot strip finishing department, the steel mesh guard keeps this man at a safe distance from the moving parts of a shear. He fishes out pieces of scrap with a hook.

SAFETY

This footguard protects feet and keeps man at proper distance from his work.

A steel company used safety setups like this one as prototypes for similar installations in its new mill. Heavy glass protects workman and microphone gives him constant control.

beam, can hold a big load in better balance. The beam was heavy and occasionally the man who unhooked it from the crane got his hand mashed. The new rack eliminates the need for unhooking the beam by hand.

Built-In Safety

In its new mill, of course, the company could not wait until the building was finished to add such a multitude of safety devices. For one thing work could not be started until the mill met the company's standards, which are far more rigorous than those required by law.

The new mill, to be ideal, should have icicle proof canopies as well as all the other modern safety devices that had been worked out in the company's existing mills. The management, going after what it wanted just as directly as it went after the causes of accidents, checked its other mills a full year before work began to find installations most similar to those in its new mill. Then it requested department heads of those installations to note every safety device in use in their department.

Supervisors were expected to photograph and blueprint the devices that could not be adequately described. Furthermore, they were encouraged to suggest changes they might make in the basic design of existing equipment if they were given a chance to redesign it. As a consequence, the company not only got a complete picture of what safety devices the new plant should contain; it got suggestions for improving its existing plants.

Safety Ingenuity

In a Pittsburgh mill, to take one example, the request for safety devices arrived at a time when a lost-time accident had just occurred on one of the open hearths. When one of the furnace helpers took a swing at a chisel with a sledge hammer to make a fracture test of a steel sample, a chip hit a workman standing nearby.

There was good likelihood that the accident might happen again. Fracture tests are often made because the cross section of a sample indicates with surprising accuracy how much carbon a particular heat of steel contains.

When the request for safety devices came through, a general maintenance foreman named Pete Reesibe, with the accident still fresh in his mind, got an idea for taking both the work and the danger out of breaking the sample.

In the machineshop he built a pneumatic chisel enclosed in a box a little bigger than the kind that houses a fire alarm. The sample is put inside the box, the door is closed, a lever is pulled, and the chisel breaks the sample with a single blow. The chisel will not work if the door is left open.

The fracturing machine was photographed and sent to the safety supervisor along with all the other safety installations around the open hearth.

When the many pages of suggestions for items like the fracturing machine, and the photographs and blue prints were assembled, the safety department, the design engineers and the plant-superintendent-to-be of the new mill checked them. A few were discarded as inadequate. Others were improved on by the design engineers who occasionally saw an installation in an entirely new perspective after getting a suggestion from the mill. In many cases, changes made possible more economical operation as well as safer working conditions.

Safety Guide

When the final safety suggestions had been checked one by one, they were bound in a book about twice as large as the Manhattan telephone directory. The items included, when worked out in actual installations, will represent an investment of many thousands of dollars in materials, labor and designers' time.

Lest the book be only a summary of what might have been and some of the items be left at the post in the rush to finish the mill, the safety department had "safety blueprints" drawn for each department of the new mill. On these blueprints safety equipment is represented by solid lines, while the remainder of the installation is drawn in dotted lines, and the supplier of each piece of equipment is listed in the margin so the safety department can keep close tabs on how everything is coming along.

The safety book which inspired these blueprints has turned out to be a sort of Hoyle defining sound safety installations for the company. Almost all the equipment is being used now in all its mills and in a few places where devices are missing they are being installed. Of course, the new mill will have the advantage of having all the safety equipment incorporated in the basic design.

When the first ground was turned over, provision had already been made for things like complex speaker systems that eliminate the need for workmen to enter possible danger areas; intricate cooling and ventilating systems; carefully planned lighting arrangements; bins for safe storage of materials; cabinets for masks and protective clothing; ingenious control switches that take a man out of harm's way before he can start a machine; electric eyes that warn operators when they are transgressing in an area that calls for unusual alertness; footguards and shields of all shapes and descriptions, even bullet proof glass to protect workmen in turrets in the various mills against flying sparks and chips.

Though the mill is not yet finished, anybody can tell just by glancing over the blueprints and the safety book that here is a major safety contribution in mill design.

Story and pictures by courtesy of American Iron & Steel Institute's "Steelways."

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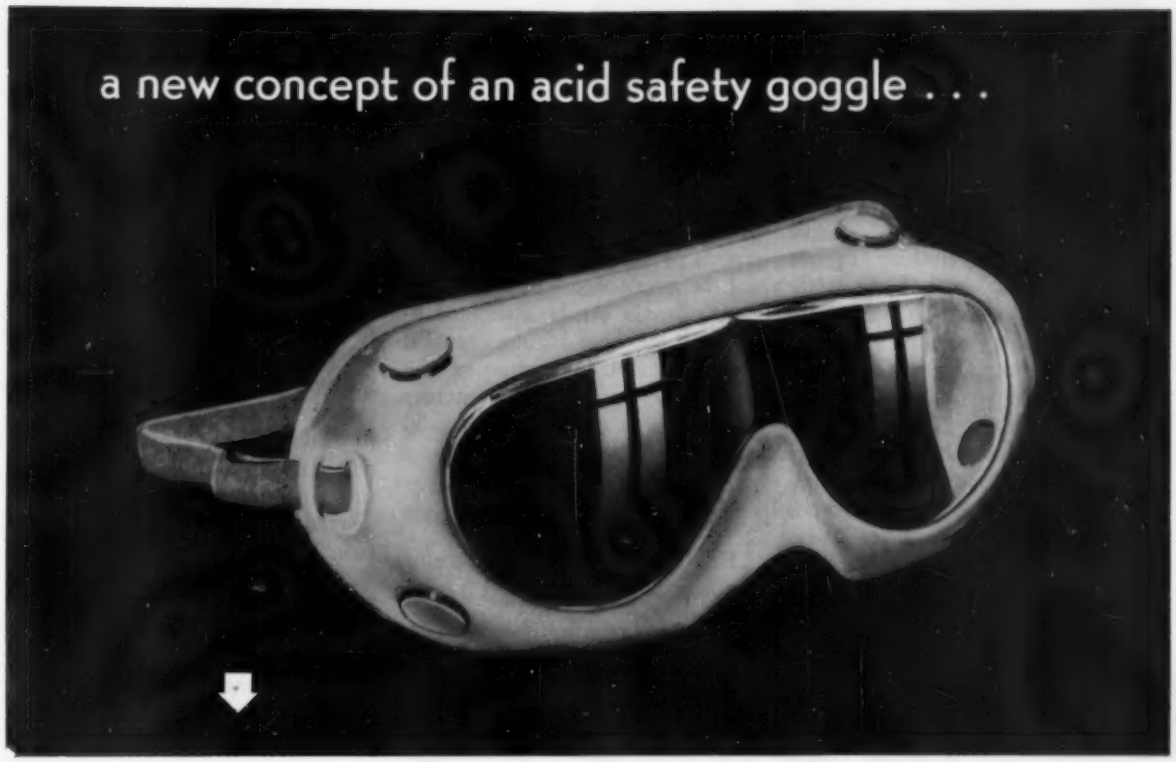
See Page 71

a new concept of an acid safety goggle . . .



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LIGHT WEIGHT — COMFORTABLE

What an improvement over heavy, bulky, uncomfortable acid goggles. Employees will wear the DUO-CHEM with pleasure and confidence. No available acid goggle has the many advanced features of the new DUO-CHEM.

BRIGHT YELLOW

The bright yellow frame, American Standards Association color code for acids, quickly indicates that the right goggle is being worn. If it's YELLOW it's "YES" for full protection from acid hazards.

VINYL FRAME

The velvet soft Vinyl frame molds in tight seal to facial contours. It is resistant to acids and alkalies, easy to clean and long wearing. Hoods over screen vents offer full protection from splashes and adequate ventilation to prevent fogging.

REPLACEABLE LENS

The one piece lens can be quickly and easily removed and replaced without the use of tools. Lens of special acid resistant optical plastic will not stain or discolor—is optically correct and meets Federal Spec. for impact resistance.

EMPLOYEE ACCEPTANCE

The DUO-CHEM has been "Field Tested" for some time under many different working conditions. A summary of employee comments on acceptance was, "It's the first really comfortable acid goggle I've ever worn."

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The Wonder Fabrics Go To Work

(Continued from page 16)

ated by neutralizing the exposed area with water or some other agents.

Although this clothing cannot primarily be classified in the safety clothing group, some of the clothing does offer certain secondary safety features. One major difference between Dynel and Orlon is the combustibility factor. While Dynel has the inherent property of not readily supporting combustion, Orlon burns with a vigorous flame, provided preliminary flameproofing has not been applied after laundering. Where possible combustion of clothing is important, this factor should not be overlooked. Another safety feature, although it may seem minor, is offered by the nature of the weave construction of the fabric. It is obvious that a loosely woven porous fabric will not delay penetration by an overdosage of chemical, but if the material is closely enough woven, penetration can possibly be delayed long enough to permit the worker to enter a shower and thus prevent severe burning of the skin.

Pricewise, synthetic clothing is more expensive than wool or cotton, ranging from two to three times cotton and one-fourth more than wool. Because of the high initial expense of the material in the yard goods form, clothing fabricators should be careful not to fall below the standards of conventional work clothing in order to gain a favorable market price. Economy comes into the picture when the durability of the synthetic clothing offsets the price ratio. Conservative wearing reports of 20 to 1 over cotton cannot be overlooked. Basically, this amazing ratio can be attributed to the synthetic fiber offering chemical resistance, and the nature of the weave offering abrasion resistance provided the material is of solid construction.

Clothing Construction

Fabrication of synthetic clothing is not at all easily done and is quite frustrating to the beginner. Dynel, for instance, can be sewn on an ordinary household machine successfully, provided maximum speed is not used. Once thrown into the rapid production line on industrial sewing machines where a shirt must be completed in fifteen minutes, headaches soon occur. The garment must be sewn with chemical resistant thread throughout; otherwise, the whole purpose of such clothing is defeated. The trouble stems from the low melting point of the synthetic. Neither Dynel or Orlon, can withstand the extreme heat (hot enough to scorch paper) that is created by friction of the needle passing up and down through several layers of material. As the Dynel and Orlon thread passes along with the needle, the thread can be seen curling and melting. To overcome this, efficient and rapid cooling devices must be employed in order to make fabrication at all possible. Even with these adjustments, labor costs may range as high as 40% more than cotton in certain tedious sewing operations. One of the first firms ever to work with Dynel and Orlon required nearly two years to really perfect the sewing operations.

Orlon work clothing can generally be identified by either a glossy or semi-dull herringbone woven material. The weight of the fabric is similar to that of cotton work shirting. The natural color of Orlon is white, but most of the clothing appears in colors of beige, dark green, or gray.

Dynel, on the other hand, is a heavier bodied material generally appearing in a twill (gabardine) weave. Various weights and weaves are available anywhere from a lightweight tropical to a heavy 15 ounce duck. Early attempts to dye the new synthetics were not too successful because of the inert nature of the individual fibers. Special processes had to be developed in order to make the dyes satisfactory for color fastness and aging. Now that the process has been satisfactorily worked out, attractive colors will soon be appearing.

The Future

What does the future hold for the synthetics? Will the day arrive when wool and cotton are in the archives as silk practically is today? Hardly. But the day will come when the natural fibers play a much lesser role in the textile field, and the majority of production is for the synthetics.

How will this state be achieved? First, even though some of the synthetics offer great economic values now for specific uses, production costs and mill prices must be reduced to be competitive with King Cotton. Wool and cotton are subject to the elements of nature and are said by some to be eventually doomed, but experience has shown that these temporary curtailments are soon adjusted, and the market booms again. We cannot then expect these age old textiles to eliminate themselves.

Both the new synthetics and the older ones, such as nylon and rayon, will find many new uses, and new and better synthetic textile fibers will be developed. The alert safety engineer who keeps in touch with the synthetic fiber field will find the solutions to many of his problems both in present and forthcoming fibers.

Pictures on pages 17 & 18 by courtesy of Mine Safety Appliances Co. Picture on page 16 by courtesy of Union Carbide & Carbon Corp.

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Already in use by the Armed Forces is a new type of cotton bandage that is body-conforming and elastic.

A comparison between the common type of bandage (left) which restricts movement of the finger and elasticity of the new all-cotton bandage developed by USDA.

NEW FLEXIBLE COTTON BANDAGE

FEATURE

This is the second of a series of three feature articles on First Aid. The next story of the series will appear in the August issue of SAFETY MAINTENANCE & PRODUCTION.

A NEW type of cotton bandage, developed by the U. S. Department of Agriculture's Southern Regional Research Laboratory, is now being made commercially for the Armed Forces and may soon be available for civilian use.

The outstanding feature of this new bandage is its ready adaptability to irregular contours of the body. This conformity is gained by means of a simple chemical treatment, worked out by the Laboratory, which involves allowing ordinary open-weave gauze to shrink freely and completely in a caustic soda solution of about 20–30 percent concentration. After washing out the caustic and neutralizing with a dilute acid, the gauze is thoroughly washed and then dried with a minimum of tension.

In shrinking, the yarns develop a high degree of crimp and kinkiness. The resultant elasticity in both directions is sufficient to make this modified gauze essentially self-fitting and self-tightening, thus conforming readily to body contours, yet without restricting circulation or freedom of movement. The material is especially suitable for bandaging joints, such as elbows, knees and fingers, where a close fitting but flexible bandage is desired. It is also excellent for head dressings, and light pressure dressings for burns and skin grafts. In contrast to ordinary gauze, this modified gauze is non-slipping because the kinks in the treated yarns cause successive layers to cling together. A more effective and neater bandage is thus obtained.

Dr. G. E. Hilbert, chief of the Bureau of Agricultural and Industrial Chemistry which operates the Southern Regional Laboratory, says that this cotton conforming bandage was actually developed during World War II and has been evaluated in military hospitals in the United States. He states that during World War II the U. S. Naval Hospital in New Orleans alone used 30,000 of the bandages on surgical cases, reporting them to be superior to regular gauze, particularly for orthopedic use. In more recent tests in Army hospitals and field stations in Korea, the conforming bandage performed better than any other types available for securing newly developed special dressings to multiple wounds and large burned areas. Success in this latter application was responsible for moving this new gauze into production.

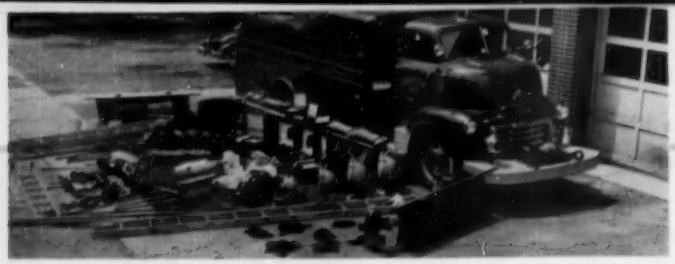
As a result of these evaluations,

(Continued on page 50)

Doctors at the U. S. Naval Hospital in New Orleans use the new all-cotton bandage with elastic properties for a mild compress—or dressing a wound which requires absorbent material to take care of drainage. The light cotton bandage holds dressing firm without excessive pressure—an advantage over regular elastic bandages often used for this purpose.

Two cotton technologists at the Southern Regional Research Laboratory demonstrate the effectiveness of new body-conforming cotton bandage. Girl on the left, wearing the new-type bandage, shows its elastic properties by bending her elbow. Girl on the right wears a traditional type bandage.

Check



The equipment of the rescue squad truck is spread out in display.

This story of a recently equipped rescue squad truck can serve as a check list for your own emergency equipment.

ONE of the most completely equipped squad trucks in existence is the new unit recently put into service by the Lakewood, New York Volunteer Fire Department. Built by a Jamestown, New York concern, and designed by George V. Blackstone, a member of the Lakewood Fire Department, the body is especially designed to accommodate a wide variety of equipment used by the department for non-fire emergencies, which occur on the average of 36 times a year.

Most of the equipment for the squad truck had been delivered by the time the chassis was ordered, so Chief Ralph J. Anderson and his associates were able to specify just what they wanted in the body design. Thus, every item of equipment has its own storage space on the truck, and is instantly accessible.

An example of efficiency in equipment storage are the compartments, on sliding trays, provided for the two self-generating oxygen masks and two demand-type oxygen masks. These masks which provide respiratory protection in any atmosphere, can be put on within seconds, and it is not necessary to set the carrying cases on the ground or remove them from the truck.

The two-ton, cab-over-engine truck chassis is assured ample power. A special 270-cubic-inch motor was ordered, together with a two-speed rear axle.

The rescue truck seats 18 men

Equipment for Rescue Trucks

Quantity	*Description*
1	Life Belt with Hatchet and Sheathe
1	35-ft., 3 section Aluminum Extension Ladder
1	25-ft., 2 section Aluminum Extension Ladder
1	14-ft., Aluminum Roof Ladder
1	10-ft., Aluminum Folding Attic Ladder
300 Ft.	½-in. Manila Rope (150 ft. per coil)
300 Ft.	⅝-in. Manila Rope (150 ft. per coil)
300 Ft.	¾-in. Manila Rope (150 ft. per coil)
300 Ft.	1-in. Manila Rope (150 ft. per coil)
150 Ft.	1¼-in. Manila Rope
1	Winch, 15,000 lbs. capacity
300 Ft.	⅝-in. Braided Winch Cable with Swivel Hook attached
50 Ft.	Assorted Chains with Hooks and Rings attached
2	Metal Snatch Blocks, single pulley
1	Resuscitator
1	Portable Acetylene Cutting Outfit with medium size tanks
2 Pr.	Leather Welding Gloves
1	Leather Welding Vest
2 Pr.	Welding Goggles
2	Oxygen Demand Masks, self-contained
2	Oxygen-Generating Masks, self-contained
1	Large First Aid Kit
2	36-unit, First Aid Kits
2	Stretchers
4	Wool Blankets
1	Set Arm and Leg Splints
1	Burn Treatment Kit
1	Set Grappling Hooks
2	20-ton Hydraulic Jacks
1	Asbestos Blanket
2	6-volt, Dry Cell Hand Lanterns with Wire Lens Guards
2	6-volt, Dry Cell Hand Lanterns with Snap-on Red Lens
2	Cab-mounted Spotlights
2	Body-mounted Spotlights
1	Beacon-Ray Red Warning Light
2	Front-mounted Red Warning Lights
2	Rear Mounted Red Warning and Brake Lights
2	Rear Mounted Red Tail Lights
6	Red Body Marker Lights
1	Motor-driven Flasher Unit
1	1500-watt, 110-volt D.C. Portable Generator
2	500-watt D.C. Portable Floodlights
1	250-watt D.C. Portable Spotlight

Your Rescue Equipment

Quantity	Description
2	6-volt, 100,000-c.p., Portable Spotlights
2	6-volt, 100,000-c.p., Portable Red Warning Lights
600 Ft.	No. 14 Rubber Covered Electrical Cable (100-ft. Lengths)
2	No. 14 Rubber Covered Electrical Cable (10-ft. Lengths)
1	Set No. 14 Rubber Covered Electrical Cable Adapters
1	Electrical Cable Junction Box
3	Portable Electrical Cable Reels
1	25-watt, 6 or 110-volt, Public Address Amplifier
2	24-watt, Weatherproof Trumpets (Speakers)
1	Free Rolling Siren
10	Compartment Lights
1	60-watt F.M. Mobile Transmitter-Receiver Radio to operate on dual frequencies of 46.10 and 46.22 megacycles
1	80-ampere Generator
2	3-cell, Flashlights
1 Pr.	Insulated Wire Cutters
1	Crow Bar
3	Pike Poles, (8-ft., 10-ft. and 12-ft.)
1	Wrecking Bar
1	Halligan Tool
2	Floor Squeegees
2	14x18-ft. Salvage Covers
1	Scoop Shovel
1	Pitch Fork
2	Baled Hay Hooks
1	6-lb. Maul
1	Flat Head Axe
1	Pick Head Axe
1	Set Tools, wrenches, screw drivers, hammers, etc.
10	Firemen's Helmets
10	Fire Coats
10 Pr.	Boots
1	Set Kerosene Road Flares
1	Back-Pack Water Pump Tank
1	20-lb. Dry Powder Extinguisher
1	Pull Down Hook with 15-Ft. wood handle
1	24-in. Portable Gasoline-driven Chain Saw
2	5-gal. Cans for Gasoline
1	2½-gal. Can of mixed Gasoline and Oil
2	Winch Jacks to support front end
3 Pr.	Heavy Rubber Gloves
1	Broom
1	Asbestos Suit
3	12-qt. Pails
3	Sponges
1	3-gal. Thermos Jug for drinking water
12	30-min. Railroad Fuses, red

comfortably, and the crew—normally six men—can ride under cover. In keeping with the "Green Cross for Safety" the truck is painted "safety green" and lettered and striped with gold leaf.

Because this community is located on Lake Chautauqua, a popular resort area four miles from Jamestown, N. Y., the Lakewood Fire Department also maintains a rescue boat as one of its five pieces of motorized apparatus. Addition of the new rescue truck, it is felt, permits land-to-shore contact on the lake.

The Lakewood Fire Department includes one chemical company and one hose company. It has a total

(Continued on page 50)

The Cleaning of Electric Motors

By JOHN B. MOORE, Manager
Aviation-Industrial Chemicals Div.
Fine Organics, Incorporated

What hazards are present in the use of solvents?
How can you select a safe and efficient solvent?
What are the procedures for cleaning motors and generators?

MANY motor failures and excessive maintenance costs may be directly attributed to the use of poorly selected solvents for maintenance and overhaul cleaning.

Furthermore, the recognition of toxicological hazards, inherent in the use of carbon tetrachloride for degreasing and cleaning motors, starters, and generators, has brought about new searches for better and safer cleansing solvents. These investigations have revealed that health and fire considerations must be weighed along with the possible destructive effects of some of the solvents commonly available.

In the maintenance and overhaul of electric motor equipment, three general situations are found:

1. Line Service Cleaning. It is here that, for one reason or another, motors are merely stopped, adjusted, and given superficial cleaning while in production position and then thrown back into operation.
2. Out-Of-Service Cleaning. In this instance, motors are removed to a central location, disassembled, cleaned, checked, and adjusted and placed back into service as later needed to replace others—usually on a rotation basis.
3. Complete Rebuilding. At this time the motor and windings are completely stripped, rewound, and rebuilt.

The solvent requirements for each of these three situations are dissimilar, although there are points in common which are applicable to "In Service" and "Out Of Service" cleaning.

Requirements of Solvents

The points of similarity are these: solvent cleaners should not be too rapid drying. Excessive speed of evaporation tends to induce moisture into the windings through the cooling effect of solvent on metals. This results in moisture condensate within field windings as the metals drop in temperature below the dew point of the surrounding atmosphere.

Neither should cleaners be too solvent, for there is danger of early breakdown of insulation, both rubber and enamels, which shortens motor life and contributes to premature failures. Kerosenes, stoddard solvent, or its commercial equivalents, are generally unsatisfactory because of oily residues which are destructive to motor components. In any case, solvents used should be as free as possible from uncontrollable toxicity hazard as well as from fire hazard. In the case of "In Service" cleaning, it is advisable to utilize only non-combustible solvents to avoid possible fires arising from ignition of the residual solvent by arcing at the brush-commutator points of contact.

In the case of complete rebuilding, of course, materials may be used without regard to effect on motor components, other than normal cleaning action for the materials involved.

Motor, generator, and starter cleaning has been accomplished in the past with such materials as carbon tetrachloride, trichlorethylene, perchlorethylene, gasoline, stoddard solvent, kerosene, or mixtures of these named chlorinated and petroleum solvents. Some specialized mixtures include methylene chloride as well.

Certain problems arise with the use of carbon tetrachloride, methylene chloride and trichlorethylene. The first of these is moisture con-

For information on solvents and maintenance equipment, see pages 82, 471, 472 of "Best's Safety & Maintenance Directory": 1952–53 Edition.

densation. The second is inadequate cleaning, because of too rapid evaporation of solvent.

Greases and kindred residues are left in small crevices because the solvent leaves before there is time to dilute the residues and run them out. The third problem arises in that each of these products, and perchlorethylene as well, are too powerful in their solvent action. All frequently are used in paint stripper formulations, hence tend to attack insulation enamels, rubber, and many plastics.

Other problems are inherent with the use of commercial grades of common petroleum solvents. Gasoline and low-flash naphthas present a severe fire hazard, one too great to be ignored. Stoddard solvent and its commercial equivalents tend to leave too much residue of an oily nature. This is because of the economic difficulty of obtaining a narrow enough solvent fraction to eliminate oils from the cut. Kerosenes are too slow in drying time and, as well, leave too much oil film. This film is not only a dust catcher, but acts as a destructive agent to motor insulations as well.

Difficulties of Blends

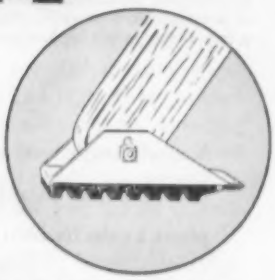
Various commercial chemical and oil companies have been offering combinations or blends of chlorinated and petroleum solvents for this use. They fall principally into three groups. First: carbon tetrachloride and stoddard solvent (type) petroleum. Second: trichlor- or perchlorethylene and stoddard solvent. Third: trichlor- or perchlorethylene and methylene chloride and stoddard solvent—or without the petroleum solvent—as a "concentrate" to be blended by the user.

Two outstanding problems are common to these blends. First is that of fire hazard and the second, of toxicity hazard. A brief study of the chlorinated solvents table which follows will make this point clear:

Solvent	Vapor Pressure MM HgM	Maximum All Concentration
Methylene Chloride	435.0	500 PPM
Carbon Tetrachloride	115.0	35 "
Trichlorethylene	75.0	100 "
Perchlorethylene	18.0	200 "

No ladder is safe if it can slip.
Safe-Hi Ladder Shoes give four-way protection against accidents:

1. **Rubber in the tread holds on any dry surface.**
2. **Cord fibers in the tread hold on wet or oily surfaces.**
3. **Ridges bite through and scrape off foreign matter for firm grip.**
4. **Self-sharpening spike holds on ice or snow.**



The hard tool steel spike core is welded to walls of softer steel which wear away more rapidly, making Safe-Hi Ladder Shoe Spikes self sharpening. Quickly attached to standard wood or metal ladders.

See your safety dealer or write

SPECIFY Safe-Hi PRODUCTS and get that extra safety margin

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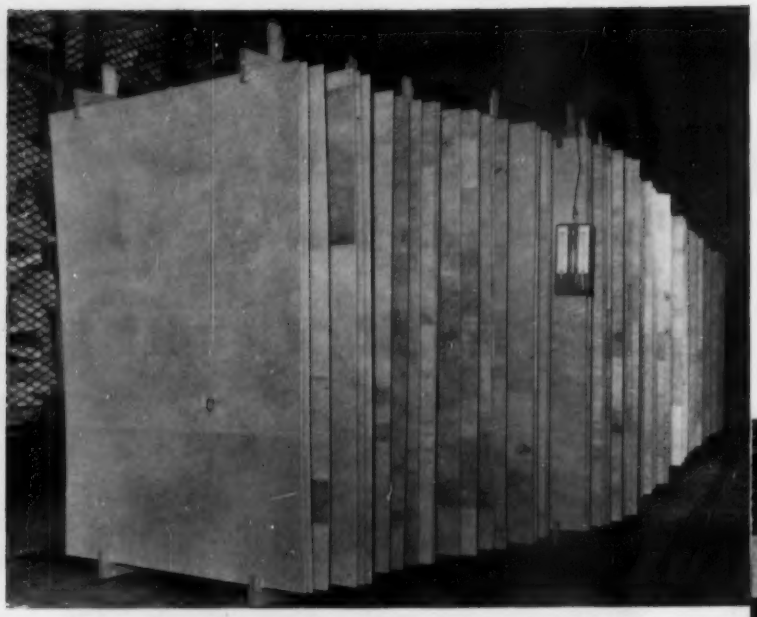
731 Club Bldg., Denver, Colo.
• SAFETY BELTS • LADDER SHOES
• POLE GRIPS • WALL GRIPS • CHISEL GRIPS
LIFELINES & LANYARDS

(For further details, use the Reader's Inquiry Card on page 71)

Gasoline has a vapor pressure somewhat lower, in range, than carbon tetrachloride; stoddard solvent is more nearly comparable in range to perchlorethylene. It becomes immediately evident that mixtures which include methylene chloride will swiftly lose this product, leaving slower-drying components to come off last. Carbon tetrachloride mixtures are unstable for the same reason. Since the theory of petroleum-chlorinated solvents blends involves the damping effect of the non-combustible chlorinated product upon the more flammable petroleum solvent, it becomes apparent that fire risks are merely hidden and are thus more difficult to control when vapor pressures are too dissimilar. At the same time, toxicological hazards are multiplied because of user carelessness,

(Continued on page 40)



In new method of surface impregnation, plywood panels are first stored in dry kiln with thermometer for control of temperature. Panels are kept there for several hours or overnight at a temperature of approximately 150 degrees F. At right is a close-up view to show the piling of the panels for heating. Two men will carry the stakes with panels to immersion tank.

For information on fire protection equipment, see pages 8–86, "Best's Safety & Maintenance Directory" 1952–53 Edition.

A newly improved method of treating building materials with fire resistant chemicals makes it possible for even the small plant to do its own "flameproofing" on the spot.

DISASTROUS fires with tremendous loss of lives and property have finally aroused the public to demand stricter legislation with regard to fire protection and safety precautions. Recent legislation has responded to this request. Just to mention a few examples:

The State of Florida has enacted very progressive laws to that effect: "Effective October 1, 1951, all tourist courts, hotels and rooming houses falling under specified building classifications must, within 60 days of notification, have all mattresses, pillows, drapes, fabric floor coverings and upholstered furniture within the building flameproofed by a flameproofing chemical which has been approved by the Florida State Hotel Commission."

California's Health and Safety Code sets an example that goes even further. It not only regulates flameproofing of textiles, as do many other states, but also sets up standards for fire resistant treatment of interior finishes (plywood panels, acoustical boards, etc.) in places of public assemblage. Most of the existing laws and regulations are state laws and city ordinances; but the requirements, standards and tests vary from place to place, causing many difficulties in Interstate Commerce. A bill introduced in the House of Representatives by Congressman Gordon Canfield on March 26, 1952, provides for uniform nationwide regulations on interstate traffic of wearing apparel and fabrics which are highly flammable. (Bill #H. 7256).

There are numerous flameproofing products on the market now, all claiming to have outstanding qualities, and the public is left with hardly any guidance as to their merits. Only a few states publish lists of flameproofing chemicals which have passed minimum requirements. A few chemicals only have complied with the requirements of the Underwriters' Laboratories and carry the U.L. label, an unquestionable guarantee of quality and performance.

Fabric Flameproofing

Flameproofing of textiles—drapes, curtains, rugs, upholstery—has been known and practiced for quite some time. A crude way of flameproofing for theatre decorations is mentioned in the literature of the beginning of the 17th century. People experienced in handling textiles do not encounter any difficulties when attempting to flameproof them, unless they come across one of the new synthetic products such as Acetate, rayon, Nylon, Celanese, etc. None of the ordinary commercial products can be used on synthetic fabrics, and most manufacturers put a special warning on the labels of

their merchandise.

However, one manufacturer, specializing in the field of chemical fire prevention for many years, has succeeded in developing a product designed especially for the flameproofing of synthetic fabrics. This product has been tested and approved.

Flameproofing of mattresses and mattress covers is gaining in popularity, and rightly so, as smoking in bed has been responsible for many deaths and large damage. Smoking and matches are the number one cause of fires, according to the National Fire Protection Association. (95,000 fires with a loss of 55 million dollars last year.) Workers' clothing, overalls, welding aprons, etc., are being flameproofed on an ever-increasing scale. Products used for this purpose should be thoroughly examined for possible ill effects to the human skin.

SIMPLIFIED FLAMEPROOFING

Lumber Flameproofing

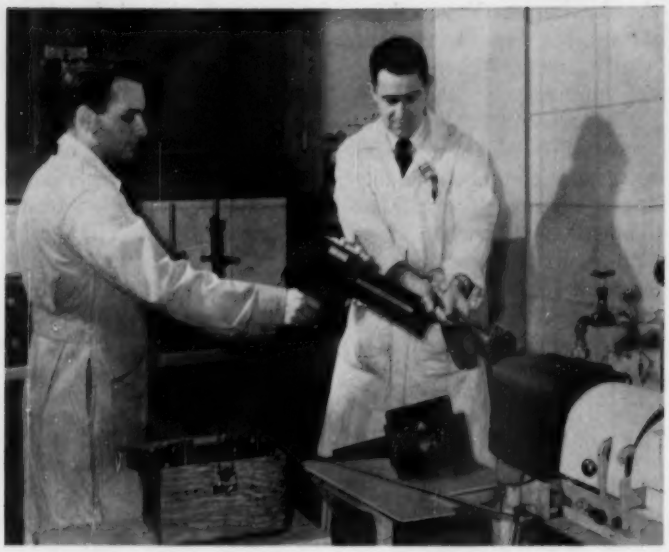
More and more building specifications require flameproofing of lumber, and of various building materials. Until quite recently, there was only one method known, namely pressure treatment of wood in retorts. While this is still the most effective method, there are many instances where this process is uneconomical and impractical, one of the reasons being the cost of transportation to and from the processing plant.

The next best thing to pressure treatment is a new method called "Surface Impregnation," developed a few years ago and recently improved. The fire retardant used for this process has been tested and listed by Underwriters' Laboratories, and is approved by the California Department of Public Works and state fire marshals. Plywood panels, construction timber, building boards, etc., are made fire resistant by an immersion process which uses a sudden drop in temperature to increase penetration of the chemical into the pores of the material to be treated. Wood is pre-heated in a kiln, and subsequently immersed into the cold flameproofing solution; or a two tank system is used, whereby the wood is first immersed in a hot solution, followed by dipping into a cold solution. Small plants with rather simple equipment are in a position to contract for fire-resistant treatment of timber, plywood, accoustical boards after having received training by the manufacturer. The knowledge that such a simple method is available induces many architects to specify "flameproofed wood construction" especially for school buildings, hospitals, hotels, motels and so on. Spray application in three coats is recommended for on location treatment of interior finishes. The fire retardant chemical * does not change the color, and can safely be used on the most precious woods. Wood, thus treated, can be coated with paint, varnish, shellac, or any other standard finish.

Statistics prove the importance of measures which will prevent fires. There are about 580,000 building fires every year in the United States. More than 40,000 Americans die in flames, or are disfigured for life. The recent National Hospital Survey has covered 8000 hospitals in the United States, and shows that nine out of ten general hospitals, both public and private, are fire traps. Individually and collectively as part of the community, it is our duty and in our power to prevent 90% of all fires. The big public fire-prevention campaign of the year is Fire Prevention Week, which is sponsored by the National Fire Protection Association, but we had best be "fire conscious" all year around.

* The name of the manufacturer of the fire retardant chemical may be obtained upon inquiry to the Editor.

The immersion tank with hydrometer and rubber stamp with which treated panels are marked. Tank is made of cedar wood, holds about 300 gallons of the fire retardant chemical solution. Immersion time 3 minutes. Panels are drained for 3 minutes and then air-dried (summer) or stored in ventilated warehouse at 70 F.



Straight from the atomic pile at Oak Ridge, a radioactive gear is about to be tested for rate of wear under varied lubrication conditions. The new technique, employed by Shell Development Company, speeds up wear tests and gives more accurate findings. The technician at right handles the "hot" gear with special tongs, while his companion checks the amount of radioactivity with a Geiger Counter.

"Hot" Gears Help Oil Research

THE life of tomorrow's automobiles, industrial tools and other machines may be lengthened because of today's ingenious application of atomic radiation in lubricating oil research.

The Emeryville, California, laboratories of Shell Development Company, research affiliate of Shell Oil, have been engaged for some time in testing the wear of machinery gears under various lubrication conditions. But until recently it was a slow and tedious job. Every gear had to be carefully weighed and examined microscopically, both before and after testing it with a lubricant.

Now, by using radioactive gears, the testing process has been vastly simplified and speeded up. The new method is much more accurate, too. It works like this:

The Shell scientists send their gears to the nation's number one atomic pile at Oak Ridge, Tennessee. The atomic energy technicians there bombard the parts with neutrons and rush the "hot" gears back to Emeryville.

A "hot" gear is meshed with an ordinary gear and run on a wear test machine, with different types of oils used as lubricants. As microscopic particles of radioactive metal are worn away, they are measured by Geiger counters on the oil stream. The amount of radioactivity indicates accurately the amount of wear.

Ordinary photographic film is also placed next to the ordinary gear later. If "hot" particles have been transferred to the "cold" gear's metal, indicating that the lubricating oil has failed to separate the gear-teeth, the fact shows up on the film.

Through such information, according to M. E. Spaght, president, Shell Development Company hopes to develop new lubricants capable of preventing gear wear under the high-speed and extreme pressure conditions characteristic of today's production machinery.

According to Spaght, Emeryville is the only private research laboratory known to employ radioactive gears in its experimental work. He also pointed out that special precautions must be taken in the use and storage of the "hot" gears to prevent possible radiation injuries.

Picture by courtesy of Shell Oil Co.

Safety in Climate Lab

SINCE sub-zero temperatures and heat waves were responsible for many deaths and injuries in the United States the past year, project engineers and seven technicians of the Engineer Research and Development Laboratories, Fort Belvoir, Virginia, might be considered lucky! They have been exposed to a variety of temperatures, ranging from 80 degrees below zero to 160 above daily in three test chambers at the Climatic Test Laboratory, and haven't had a single injury since April 10, 1951.

This enviable record was not attained entirely through pure luck, however! It took many precautionary measures on the part of seven men to prevent any serious accidents.

The Climatic Test Branch itself is widely known for its accurate simulations of climatic conditions that exist throughout the world. The actual control of the conditions depends on Max P. Whitford, Lonnie B. Rhea, Randolph W. Brewer, Eugene J. Holt, Patrick S. Beverly and John W. Stewart, who under the direction of Mr. John Klisch do the actual work in the creation of these synthetic climates.

Safety Precautions

During a test in the main test chamber at the lab, a project engineer may leave the familiar surroundings of Fort Belvoir to enter the Arctic where temperatures may be as low as 80 degrees below zero. In other tests he may enter a desert climate where temperatures may be as high as 160 degrees fahrenheit or a tropical climate with a humidity of 95%. The next day atmospheric conditions at 30,000 feet above the earth may be duplicated. The lab is capable of exceeding any natural temperature ever recorded on the face of the earth. Paradoxically, it is only four feet from the bitter cold of

(Continued on page 55)

". . . an expression of faith in the intrinsic soundness of our country."

GEORGE C. BRAINARD
President, Addressograph-Multigraph Corporation

"The purchase of United States Savings Bonds is an expression of faith in the intrinsic soundness of our country, and indicates foresightedness with respect to one's own future needs. Since the inception of the Payroll Savings Plan by Addressograph-Multigraph Corporation in 1942, a large percentage of employees have continuously availed themselves of this safe and convenient method of providing for later benefits."

Every payday nearly seven million men and women—among them a large percentage of Addressograph-Multigraph employees—give substantial expression of their faith in America by putting $140,000,000 into U.S. Defense Bonds.

These seven million payroll savers are not only backing up our country's defense effort—they are providing for their own security . . . helping to combat inflationary pressures . . . and building a reservoir of future purchasing power. How big is the reservoir? On December 31, 1951, the *cash value* of Series E Bonds outstanding was $34,727,000,000—*$4.8 billions more* than the cash value of Series E's outstanding in August, 1945.

Payroll savers are serious savers. Since May, 1951, through April, 1952, E Bonds maturing totaled $2,345,000,000. But, only $593,000,000 of these matured bonds have been presented for payment. 75% of these matured bonds are still held by their purchasers.

As President of one of the first companies to install the Payroll Savings Plan when it was presented to industry in 1942, Mr. Brainard also appreciates the benefits that accrue to a company that has a Payroll Savings Plan with more than 60% employee participation. In company after company, absenteeism has gone down, the accident rate has fallen off and production has gone up as employee participation passed the 60% mark.

What is the percentage of *your* employee participation? If it is less than 60%, get in touch with the Savings Bond Division, U.S. Treasury Department, Suite 700, Washington Building, Washington, D.C. Your State Director (listed in telephone books under "Savings Bond Division" as well as "U.S. Treasury Department") will be glad to show you how easy it is to reach 60%, 70%, or higher through a simple person-to-person canvass that puts a Payroll Savings Plan Application Blank in the hands of every employee. Phone, wire or write today.

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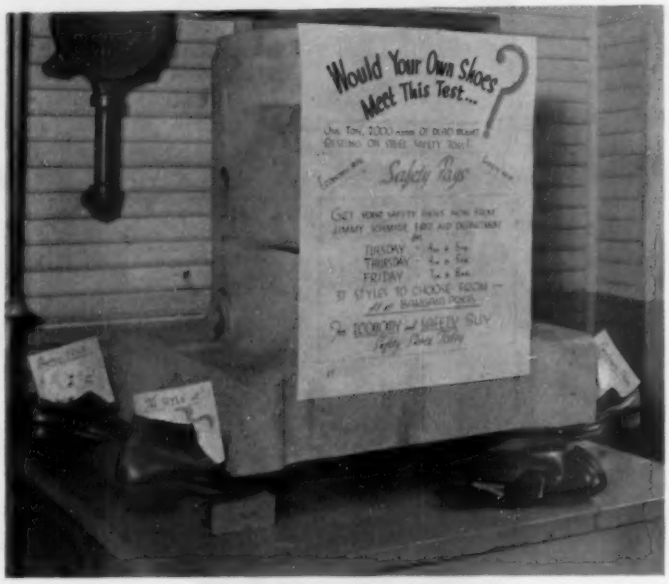
SAFETY MAINTENANCE & PRODUCTION Salutes a Safety Idea for JULY



What Would Happen In A Pinch?

THE answer is, "Nothing, provided that your shoes have steel safety toes." To dramatize the effectiveness of safety toe shoes in preventing foot injuries, the Cooper Bessmer Co., Mt. Vernon, Ohio, set up the display shown above as part of a special safety promotion campaign.

A heavy casting, weighing 2,000 pounds was placed so that it was supported solely by the toes of four safety shoes, each shoe under one corner of the casting. Of course the steel toes were fully capable of carrying the heavy weight without damage to the shoes.

The accompanying sign for the display asked employees if their own shoes could meet the test and reminded them to buy safety shoes through the company plan for both safety and economy. Needless to say, the thought provoking display was highly successful.

Picture by courtesy of Lehigh Safety Shoe Co.

Cleaning Motors

(From page 35)

bred by the assumption of the workman that a "safety" solvent requires less care than one of known hazard.

Constant Boiling Point Blends

Researches, recently brought into commercial status, appear to establish the feasibility of constant-boiling point blends which offer a satisfactory compromise for the problem. Not only have the solvents offered been found to be uniform in evaporation characteristics, but, although they are blends of chlorinated and petroleum products, they appear to possess excellent dielectric properties as well. Tests indicate that flash points are retained throughout the

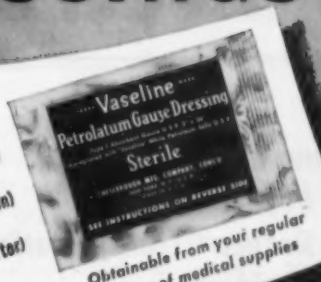
(For further details on advertised products, use the Reader's Inquiry Card on page 71)

DEPENDABLE DRESSINGS

for FIRST AID, for EMERGENCY for DISASTER, for DEFENSE

With a distinguished record of use by the medical services of the Armed Forces, by other governmental agencies, by hospitals, by emergency and disaster units, by industrial clinics and first-aid stations . . .

Now in three sizes:
No. 1: 3" x 36" (6 in carton)
No. 2: 3" x 18" (12 in carton)
No. 3: 8" x 36" (6 in carton)



Obtainable from your regular source of medical supplies

VASELINE STERILE PETROLATUM GAUZE DRESSINGS

have been adopted by surgeons as standard procedure, by nurses as preferred matériel, by professionally-trained aid personnel as the compact, ready-made, ready-to-apply dressing of their choice.

CHESEBROUGH MFG. CO., Cons'd
Professional Products Division • New York 4, N. Y.

Specify these superior dressings in the foil-envelopes to your supplier.

VASELINE IS THE REGISTERED TRADE-MARK OF THE CHESEBROUGH MFG. CO., CONS'D

(For further details, use the Reader's Inquiry Card on page 71)

evaporation cycle and dielectric breakdown points well over 25,000 volts. Evaporation rate is controlled to minimize moisture condensation, and cleaning properties are said to be equal to those of carbon tetrachloride.

A limiting factor of the product is that it may not be used to degrease air-dry insulating lacquers. Since these are applied in solvent solution, usually toluol or xylene, cleaning solvents of the halogen or hydrocarbon groups will resoften them with the result that dust and carbon particles will be retained instead of released from insulated surfaces. Rapid drying solvents such as methylene chloride or highly flammable lacquer thinners must be used sparingly and with care.

Cleaning Methods

Procedures for cleansing motors, starters, and generators which are light enough to be handled should include (1), a soak tank for end-bells and stator frames, and (2), a hooded work-table with an exhaust fan to draw all fumes away from the operator to the outside atmosphere. An adjustable jig may be rigged to accomodate rotors of varying length so that they may be spun freely.

After disassembly of the equipment, let frames and end-bells soak in the solvent tank while the rotor is spray-cleaned with clean solvent. Air pressures should not exceed 50 pounds PSI to avoid harm to wiring. Following application of the solvent, an air blast should be used to remove excess solvent but not to dry the surface thoroughly. By permitting the final film to dry normally, moisture penetration into windings is avoided.

Then stator frames and parts should be removed from the tank and drained. These parts are then treated as were the rotors, with clean solvent. Particular care should be used to blow out pockets where solvent may be trapped. From this point the normal procedure of inspection and build-up may be followed.

Larger apparatus of course, cannot be conveniently dipped in tanks, but reliance on spray cleaning with clean solvent is most satisfactory. Care must be exercised to blow out areas of possible solvent entrapment. Because larger volumes of solvent are used, whether of established toxicity hazard or not, all such cleaning operations should be done with adequate safety equipment in use. This includes forced draft ventilation to exhaust fumes away from the workmen, the use of gas masks and protective clothing. It is worthy of note that while the threshhold limits of petroleum solvents are, in general, far in excess of the halogens, petroleum solvents give little or no warning of their lethal dose limit. It is imperative, therefore—to avoid accidents—to have strict regard for common sense safety measures. In other words, live to work so you can work to live.

From a paper prepared for the Society of Automotive Engineers.

TRANSPORTATION

How a Medical Department Can Reduce Transportation Accidents

DOCTOR Harold Brandaleone, Medical Director of the Third Avenue Transit System, New York City, has proven that the great number of persons killed and injured each year in bus accidents can be enormously reduced by proper medical and psychological supervision and treatment of employees in the transit industry.

The System's Medical Department has effected a financial saving of almost $100,000 a year since its organization. This does not include the unknown sums saved in decreased liability claims by accident reduction. The total number of accidents in the System has been reduced from 10,178 in 1946 to 5,669 in 1951.

The Surface Transportation Company, a division of the Third Avenue Transit System, won the American Transit Association's top award for Safety because of Dr. Brandaleone's efforts in establishing and maintaining their excellent Medical Department. The dramatic results of this work have been reported in detail in a paper by Dr. Brandaleone entitled, "Medical Care in a Surface Transportation Company."

There is a direct relationship between the mental and emotional health of operators and their proneness to frequent accidents. In fact, 85% to 90% of all accidents are due to human factors. Therefore, the care provided by the Medical Department of the Third Avenue Transit System is directed at the correction not only of physical, but also of emotional defects in the bus operators.

The purpose of a Medical Department in the industry, in addition to care and maintenance of health, he says, should be accident prevention and public safety.

Medical Service Reduced Accidents

In 1947, when the Department was reorganized under Dr. Brandaleone's guidance, the most important single problem was the high accident rate. This was corrected by the following methods: first, a very detailed comprehensive type of pre-employment examination which often includes a study of the individual's Armed Forces record; second, an extended medical service program which includes visits by staff physicians to the home of the sick employee, as well as special medical and safety study and retraining of the accident repeaters; and third, a periodic medical examination of each bus operator.

These special services of the Medical Department resulted in a decrease of accidents under operator control from 6,377 in 1946 to 3,608 in 1950, a decrease of nearly 50%. Vehicle collisions, the largest single type of operator controlled accidents, were reduced in this same period from 5,270 to 2,867. Also, there was a 50% decrease shown in the number of illnesses from 2,167 in 1948 to 1,075 in 1950.

The operator of a vehicle involved in a major accident, or in repeated minor accidents, is referred to the Medical Department where a staff physician, through skilled listening and analysis, studies the operator's history, his social life, home environment, illnesses, and domestic problems to determine any reasons for anxiety.

For instance, as a result of the medical care and the safety measures used, the number of compensation cases was reduced from 536 to 265 between 1948 and 1950, showing the general health of the employees to be on a much higher level. This extensive program has decreased absenteeism with resultant reduction in sick pay and compensation costs.

The Clinic is available to the patients' own private physicians for consultation service and laboratory work, and information is submitted directly to them.

Due to the effective work done by his Medical Department and its competent staff of physicians, Dr. Brandaleone feels that this same reduction in accidents could be brought about in other sections of the transportation and trucking industry. In this way, all companies using motor vehicles, such as taxicabs, trucks, busses and trolleys, could receive this type of service.

Dr. Brandaleone is of the opinion that a Medical Safety Center, established to service these companies, both large and small, would mean a great saving of lives and money.

American Ingenuity Devises Tire Cage

AN ACCIDENT in February resulting in the death of a truck driver of the 69th Transportation Truck Company at Turley Barracks, Mannheim, Germany may never happen again because of a device designed by Lt. Col. Antonio J. Lawrence, commanding officer of the 154th Transportation Truck Battalion on Heidelberg Military

SAFETY

Post in the U. S. Zone of Germany.

The soldier suffered fatal injuries while he was inflating an 11:00 x 20 heavy-duty tire, one of the largest used in either military or civilian trucking, to the proper air pressure of nearly 70 pounds per square inch. He was struck by a tire iron when the rim of the tire blew out of the wheel.

Both military and civilian truckers have long recognized the danger in inflating large tires. Many experienced mechanics and drivers have been disabled or permanently crippled when an improperly seated rim has blown from an inflated tire.

The same day of the accident, Colonel Lawrence studied the hazard and drew up rough sketches of a device to eliminate possible future recurrences.

Under the supervision of Lt. James D. Taylor and M/Sgt. Harry Jones, Headquarters Company welders began construction the following day on a cage-type safety device of steel and iron. The completed device is a ⅜-inch-thick steel plate, 48 x 48 inches supported by arc-welded angle irons imbedded in the concrete floor.

Complete specifications and details of Colonel Lawrence's device were mimeographed and orders given to all units in the battalion that "comparable cages will be constructed as expeditiously as possible to insure against further tire inflation accidents." This order has been forwarded to all battalions under the 37th Transportation Highway Transport Division.

Picture is U. S. Army Photo.

Safety Expert Honored

JULIEN H. HARVEY, one of the country's best known pioneer safety specialists, was honored by the American Transit Association for his contributions to safety in the transit industry. A silver medallion on mahogany base was presented to Mr. Harvey by Guy C. Hecker, A.T.A. executive manager, at the annual American Transit Safety Awards luncheon in Philadelphia.

The American Transit Safety Awards, among the oldest in the country, were inaugurated in 1914. They are given annually to transit companies in the United States and Canada with outstanding safety records.

Good Maintenance Essential

AN INCREASE in the registration of motor trucks in this country from 5,000,000 to 8,500,000 in the last nine years was reported by Theodore McGill, president of the Society of Fleet Supervisors, at the annual convention of the Greater New York Safety Council.

Addressing a commercial vehicle session at the New Yorker Hotel Mr. McGill said that the commercial vehicle industry, including manufacture and distribution of trucks and buses, garaging and servicing, and production of fuels and raw materials, was second only to agriculture in the national economy. He said the industry accounted for one out of every eleven pay checks in the United States.

Mr. McGill, a district superintendent of the New York City Department of Sanitation, declared that preventive maintenance and automotive conservation procedures were major problems whose importance was gaining increasing acceptance in the industry. The slowing of equipment deterioration was now recognized as a big factor in distribution unit cost and in accident reduction, he declared.

Pointing out that 2,500,000 of this country's trucks were more than ten years old, Mr. McGill said only "the abnormal conditions now existing" in automobile production slowed replacement of vehicles and more rapid expansion of industrial truck fleets. He said these factors made preventive maintenance even more important and described in detail five different types of maintenance service for the needs of various truck use.

Courtesy and Safety

COURTESY and safety on the highway have won for Allen C. Sagerhorn, a 36-year old truck driver of Barnesville, Minn. the coveted Trailmobile "Driver of the Year" trophy, presented annually by the American Trucking Associations, Inc.

Presentation of the trophy to Mr. Sagerhorn was made in Washington by Ralph B. George, of New York City, eastern sales executive of Trailmobile Inc., a subsidiary of Pullman Incorporated.

Mr. Sagerhorn not only has driven commercial vehicles since 1941 without an accident but performed two heroic deeds on the highway, in one of which he rescued from death a man trapped in a burning car, following a crash, at the serious risk of his own life.

Mr. and Mrs. Sagerhorn were presented to President Truman, who warmly congratulated the 1952 "Driver of the Year" for his splendid record for courtesy and safety, and pinned a medal on him in a public ceremony at the President's executive offices.

Mr. Sagerhorn, who drives for Consolidated Freightways, of Portland, Ore. out of the company's terminal in Fargo, North Dakota, had previously been named North Dakota's "Driver of the Year" for 1951.

Sweat Makes a Man Blind

ONLY A CELLULOSE SWEATBAND SUCH AS DRYBROW REFRIGERATES THE HEAD BY EVAPORATION

DRYBROW Steps up Production

4 BIG REASONS WHY IT PAYS TO BUY DRYBROW, THE RE-USABLE SWEATBAND

1 The Allsafe DRYBROW lasts for weeks. May be washed and sterilized —used and re-used repeatedly.

2 Made of cellulose sponge—the Allsafe DRYBROW actually cools forehead.

3 Only the Allsafe DRYBROW is reinforced for longer life.

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Try a DRYBROW at our expense

Write Lyall Myers for free sample

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Rush us sample DRYBROW:

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City _____ Zone ____ State ____

By _____

THE ATOMIC FIELD

"Swimming Pool" Reactor

DEVELOPMENT of a relatively inexpensive, low power nuclear reactor, unique in that it is submerged in water to protect operators from radiation was announced recently by the Oak Ridge Operations Office of the U. S. Atomic Energy Commission.

The reactor was pioneered and developed by scientists at Oak Ridge National Laboratory, which is operated for the Commission by the Carbide and Carbon Chemicals Company, a division of the Union Carbide and Carbon Corporation.

The reactor is the central feature of a bulk shield testing facility which is used for experiments to aid development of improved reactor shields. The facility is popularly known as the "swimming pool," since the reactor is submerged in a pool of water 20 feet deep, 20 feet wide, and 40 feet long, in which it can be moved about. The reactor became "critical" on December 17, 1950, and was placed in operation soon afterward.

The entire facility was constructed for less than $250,000, exclusive of fuel. This reactor has proved to be an economical and safe producer of radiation for certain purposes. For these reasons, as well as low cost, simplicity and performance, it is one of several types of reactors which might be suitable for use at schools and other research and training institutions, according to Dr. C. E. Larson, director of the Oak Ridge Laboratory, and Dr. A. M. Weinberg, research director. The purposes best served by each type differ and the estimated costs vary considerably.

Construction Features

The reactor is an assembly of movable fuel elements placed on end in an aluminum grid. It is suspended by an aluminum framework from what is called the reactor bridge, which spans the pool. The bridge rests on wheels fitted to rails along either side of the pool, so that the reactor can be moved along a center line the length of the pool.

Similarly, an instrument bridge spans the pool and operates on the rails. A steel framework attached to the movable mechanism of this bridge extends nearly to the bottom of the pool. Using a carriage that slides up and down on the framework, operators can place test instruments at any point in the pool.

A useful feature of the facility is an aluminum gate, 12 feet high and 21 feet long, 10 feet from the south end of the 130,000 gallon pool. When the reactor is moved to this end of the pool, the gate can be lowered and the greater area of the pool can be blocked off and pumped dry. Thus, some repairs and adjustments are facilitated, and instruments and shielding samples can be placed easily in desired spots, with personnel meanwhile protected from radiation.

Shielding measurements on samples can be made also in the open air, with samples placed near the dry side of the gate and the reactor moved close to the other side of the gate.

Centered on the bottom surface of the pool is a well, 14 feet square and 5 feet deep. This well is filled with removable blocks of high-density concrete, giving part of the pool an adjustable floor level for more flexibility in the placement of shielding samples and instruments.

Uses of Reactor

The reactor has a variety of potential uses in addition to its principal role as an aid in the testing of shields. It enables students and

(For further details on advertised products, use the Reader's Inquiry Card on page 71)

other investigators to perform critical experiments, study neutron distribution and, within limits, study the effects on reactor operation of various patterns of arrangement of the fuel elements.

Operated at full power, the reactor has a flux high enough to make long irradiation periods unnecessary for most experiments. With the neutrons available from this reactor, scientists can study phenomena of short-life beta and gamma radiation, a field which atomic scientists consider fertile.

The "swimming pool" helps also in the expanding practice of chemical analysis by making specimen materials radioactive. In addition, since a neutron beam from this reactor can be collimated—that is, in a sense, "focused"—with ease, equipment for neutron diffraction research can be used with this facility.

The reactor was built to answer a special need for more experimental work on shields. Such work previously was carried on intermittently in a "lid tank" facility. This tank, 7 x 7½ by 11 feet, containing about 5,000 gallons of water for shielding purposes, is attached to one side of the graphite-uranium reactor (the pile) at ORNL.

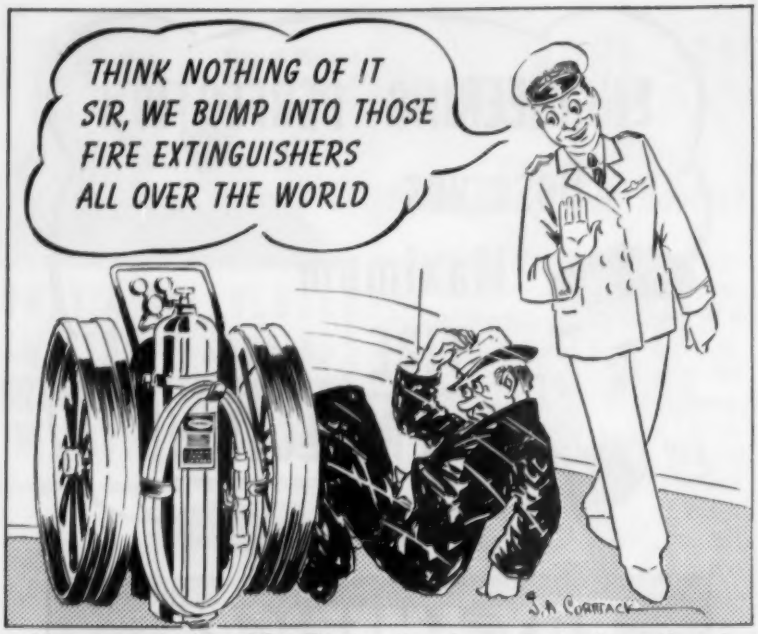
E. P. Blizard and C. E. Clifford of ORNL initiated the project for operating a radiation source under water. William M. Breazeale directed the design work, done by ORNL personnel, and the construction. The reactor and its equipment were built in laboratory shops, and the facility is now operated by J. L. Meem and his co-workers in the Physics Division shielding group.

(For further details, use the Reader's Inquiry Card on page 71)

Monitoring Handbook

USERS of radioactive materials and other sources of radiation must take adequate measures to avoid overexposure. Any effective radiation protection program may require a variety of types of measuring instruments; and trained personnel must be available to insure the use of suitable instruments in the proper way, to interpret the readings obtained, and to make necessary recommendations for reducing hazards. Representing the best current knowledge of the subject, "*Radiological Monitoring Methods and Instruments*," National Bureau of Standards Handbook 51, (15 cents—order from Government Printing Office, Washington 25, D. C.) establishes some basic guides for methods of determining radiation hazards and of selecting suitable instruments for measuring them.

Radiation hazards arise from such varied sources as X-ray units, radioactive isotopes, and high-voltage accelerators. Some sources constitute hazards only while in operation; some are continuously dangerous; some induce radioactivity which may persist for some time after the equipment ceases operation. Monitoring methods must vary accordingly. The handbook explains different types



Many thousands of Ansul Dry Chemical Fire Extinguishers are exported each year. They may be found in oil fields of Central and South America, in gold mines of South Africa, in the Arctic wastes of Iceland, Northern Canada and Alaska and even in the tropical paradises of the Dutch East Indies. In addition, airports all over the world use Ansul Equipment to protect lives and property against loss by fire.

It all goes to prove that the word gets around concerning the greater Fire-fighting effectiveness of Ansul Dry Chemical Fire Extinguishing Equipment.

SEE PAGE 8

JB48—Safe Driver Awards
JB48—Gold plated, pin and safety catch, any year date.
75¢ ea. (plus Fed. tax).

1933 SERIES—1¼" dia. hard glazed enamel, heavily gold plated pin and safety lock catch.
$10.50 doz. (plus Fed. tax).

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PLAQUES—TROPHIES
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Chicago 3, Ill.

of radiation detectors, measuring instruments, and personnel monitoring instruments; and it discusses instrument construction standards and characteristics required for the diverse purposes. Only those instruments which have proved useful in practice are considered.

General information is also given on hazard determination and control, airborne hazards, surface contamination, personnel monitoring, radiation-survey methods for radioactive-isotope monitoring and in medical and industrial installations, air and water sampling equipment and methods, and counting of alpha and beta particles.

The Subcommittee on Monitoring Methods and Instruments of the National Committee on Radiation Protection prepared the handbook, which was approved by the main committee before publication.

What's New?
See pages 68–70

Midwest Views Safety

(From page 20)

necessary to use negative discipline —discipline by force."

Management's Role

J. C. Jenkins, Manager, Employee Services, Crosley Division, Avco Manufacturing Corporation, Cincinnati, speaking before the Maintaining Interest session had this to say: "If we can spend the next few minutes evaluating and re-emphasizing certain primary responsibilities belonging to top management with respect to safety, perhaps it may help us to re-direct our activities toward a more effective safety program in our own organizations. I don't mean to infer that Top Management alone could have prevented the 2,100,000 occupational lost time accidents that occurred in this country during 1951, or any previous year for that matter.

"I do believe, however, that if every top management man in America rededicated himself to the task of making his plant the safest place to work in the community in which he operates, this industrial accident figure could be cut in half in 1952. Why shouldn't safety consideration be just as uppermost in the minds of top management as are production quotas, costs, quality control problems and the like? You people know better than anyone else that you can't blow hot and cold on the matter of safety and still prevent lost time accidents.

"I believe that top management as a whole really wants to operate the safest possible place in which to work, but some of their very actions, or should I say lack of action, on occasions telegraph an entirely different interpretation of their desire to the supervision below them. Foremen and assistant foremen are sensitive reflectors of what they feel the big boss wants. You can be sure the attitude and action of the man on the bench, or the machine or the assembly line becomes the final link in this chain reaction.

(For further details on advertised products, use the Reader's Inquiry Card on page 71)

"The point I want to make is this. Safety like sales is as much a psychological process as it is a mechanical one. We must have a goal to shoot for. Unless top management establishes that goal in the minds of every man and woman in the organization and keeps it there, the safety record in your organization and mine will never be what it otherwise could have been."

The Safety Engineer

Louis Zale, safety director, Ceco Steel Products Corporation, Chicago, speaking on the "Responsibility of the Safety Engineer in Maintaining Interest in Safety" stated that America cannot afford to waste lives on the pyres of carelessness. A life spared today will make our democracy live longer tomorrow.

He continued, "The Industrial Revolution has made today's mass production techniques possible. The current swing to Human Relations in Industry is restoring that personal touch the masses of workers lost in this industrial upheaval. It has been said that if you desire to reduce a man to nothing, all you have to do is to give him the idea that his work is useless. By the same token, if you are to lift the worker to newer heights make him feel superior—important. Like in a quiz show, if the audience knows the answer and the so-called expert misses the question, they feel good. A worker feels important when he is praised for a job well done, he feels superior when he not only gets paid for a suggestion but also sees it adopted by his company."

Industrial Health

L. B. Hunter, Manager, Industrial Relations, Inland Steel Company, Chicago, spoke on a Workable Industrial Health Program as follows: "A workable, industrial health program must include every employee in the company from worker to top executive. Such a program logically divides itself into phases namely: (a) Development and maintenance of working conditions which are conducive to good health and (b) Development and maintenance of medical facilities to improve the health of the employees.

"The executive's job is not a physical one but a psychological or mental one. I believe that we must supplement our program of medical examination with one of psychological examination. We can conserve our executive talent by better evaluation of it, and by more careful measuring of the abilities of individuals in relation to the requirements of jobs.

"It is recognized that the present programs of physical examinations for executives and other employees is only one part of the job. We must know more about the requirements of the occupation. We must know more about the causes of illness, in the plant. We must coordinate the medical activities within the plant with those in the community so that together they build a healthier community and healthier plant."

BE FRESH . . . STAY FRESH

wear a DUPOR AUTOMATIC

Water Cooled Respirator

For years a prime favorite of respirator users. Sponge filter saturated in water provides moist air — cool, comfortable breathing. Keeps out dust, fumes, smoke, paint spray. Face mask is of soft white rubber. Maximum visibility. Automatic valve exhausts breathed air instantly. Wear while paint spraying, or as protection against gases, dusts, smoke, fumes.

Sample sent $2.00 pp

wear Cover's FOG-PROOF GOGGLES

Famous "Nod & Shake" Type

Used by thousands, for years, to protect eyes against paint spray, gases, dusts, fumes, smoke. Can be worn with any make respirator. Frames are of soft, pliable rubber that gives air-tight fit on any shape face. A few drops of water placed in patented groove keeps fog from forming on inside of single lenses. An easy nod and shake of the head keeps lenses clear indefinitely.

Sample sent $2.00 pp

H. S. COVER, South Bend, Ind.

(For further details, use the Reader's Inquiry Card on page 71)

UNSAFE TOE PARADE

THE safety department of a large industrial organization received in just one day's mail the following reports of toe injuries to personnel in the company's various branches:

1. Employee was turning over a large wheel during painting operations on a revolving table. The wheel fell causing the table top to break and spilling the wheel to the floor. It hit the worker's foot on the instep and large toe.

2. A casting slipped out of a vise, striking an employee's foot with injury to the toes.

3. A worker picked up a mold that was in two sections, but the lower half came apart and fell on his foot.

4. A group of men were passing materials from hand to hand. One of the group failed to get a good grasp and the object fell, bruising his second and third toes.

5. While connecting up grease lines, the threads pulled out of an eyelet of a safety weight letting the weight fall on an employee's foot.

6. A steel shell standing near a worker's table fell over striking him on his right ankle and foot.

Most of these accidents resulted in severe pain, bruised toes, and even fractures. None of the workers were wearing safety shoes, even though safety shoes were available to all employees at a nominal cost.

EXHAUSTED BY EXHAUST

A CREW of three men were insulating a theater by spraying the walls with asbestos dust containing a glue coating. The men had been complaining of headaches all day but were working late to complete the job. One of the three was working almost continuously on a scaffold while his two assistants were able to make occasional trips outside the building for fresh air. The cause of the headaches was carbon monoxide fumes from a gasoline motor which ran the compressor for the spraying machine. Finally the chief sprayer fell to the scaffold in a state of collapse and suffered a two-weeks illness from the effects of the fumes. As a result of this accident, the acoustical company's safety rules now include strict orders that gasoline engines be placed outside buildings and away from doorways or any other openings into the building.

EVEN THE IMPOSSIBLE CAN HAPPEN

A BRUSH cutter, while doing his job, uncovered a nest of yellow jackets. When the insects attacked, he started to run but stumbled and fell just as a fellow employee made a stroke with an axe. His hand came under the axe and two fingers were severed at the first joint. Although it does not seem likely that this accident could have been prevented by the application of safety methods, it does seem as if the worker could have exercised a little more caution in considering the natural hazards associated with his job.

THE I-DON'T-NEED-IT TYPE

HERE is another case of where safety equipment had been issued to all employees on the job, but one in particular had other ideas about using it. This employee, while helping to put corrugated sheeting on the roof of a power plant, erected a makeshift platform from defective lumber. One of the planks gave way causing him to fall 14 feet, with his head striking a concrete foundation block resulting in fatal injuries. Had the employee been using the life line and hard hat issued to him his life might have been saved.

OUT OF THE FRYING PAN

READERS of New York newspapers need not be told about the recent explosion of an anesthetic (cyclopropane) which was being inhaled by a patient in a hospital operating room. The explosion, which killed the patient, was blamed on a spark generated by someone walking across the operating room. Such explosions are caused by static electricity generated by friction between non-conductive materials, such as the shuffling of feet across a floor, separating or unfolding blankets, rubbing of silk and rayon clothing, etc. Hospital operating rooms and personnel should therefore be provided with a means of safely carrying the electrostatic charges away as soon as they are generated. This requires conductive floors and conductive shoes or static-dissipating devices for personnel.

DOUBLE CHECK

A PETROLEUM derrickman reported for his regular shift, relieving a co-worker on the thribble board. He put on the safety belt which the other man had just removed and proceeded to rack the next thribble. The man being relieved had turned away and as he was preparing to descend the ladder to the derrick floor, heard a startled gasp and turned to see the derrickman fall to the rotary table eighty-five feet below. A careful examination of the safety belt showed it to be in perfect condition. Apparently the victim thought he had fastened the belt, but did not double check to make certain.

SAFETY LENS SAVES AN EYE

EMPLOYEES at the Westinghouse Small Motor Division Plant at Lima, Ohio had a striking demonstration recently of the value of safety glasses. A lathe operator was wearing these glasses when a tool chipped and a piece from the tool imbedded itself in the right lens, as shown in the picture. The piece of metal weighed 48 grams, seven grams more than a .22 caliber rifle bullet.

Picture by courtesy of Westinghouse Electric Corp.

For Safety's Sake Use

DAYTON SAFETY LADDERS

Maintenance men everywhere rely on Dayton Safety Ladders for maximum safety and convenience. Daytons are constructed of tested airplane spruce and reinforced with rigid steel supports to give great strength and lightness of weight.

Handrails of steel guard the large roomy platform for added safety. Half of platform can be raised to form an extra step, when needed. These famous ladders can be set up instantly, are easy to carry and fold compactly for storing. Automatic locking feature insures safety while ladder is in use.

Write Dept. G. for Bulletin

Sizes 3 feet to 16 feet in height (measured from ground to platform) with standard rubber safety shoes at no extra cost.

DAYTON SAFETY LADDER CO.

2339 GILBERT AVE. CINCINNATI, OHIO

In Canada—Safety Supply Company—Toronto

(For further details, use the Reader's Inquiry Card on page 71)

Multi-Lingual Safety

Reglements

Schutz Vorschriften

Apsaugos Instrukcijos

Instrucciones de Seguridad

Uputstva za Obezbedjenje

安全への手引

Whatever the language, it still means "Safety Instructions"

THE Curtiss Candy Company, anxious to maintain its good safety record, has a new safety problem with the increased number of Displaced Persons being employed. Many of the Displaced Persons have only a limited knowledge of the English language so that regulations, including safety instructions, must be given through an interpreter.

The D.P. is no different than any other worker who must constantly be reminded of various safety practices. To accomplish this, the Curtiss Candy Company has instituted a program of safety education for the D.P. in his own language. The first step is the issuance of simple safety instructions to the employee at the time of his employment.

Written in various languages, these instructions give the basic requirements for a safe worker. Mr. Benjamin B. Bryan, Jr., Safety Director of Curtiss, designed these instructions with the assistance of insurance company representatives. The translations were prepared by the Consulate or other agencies representing the Displaced Person's country. At the present time, instructions are prepared in the French, German, Lithuanian, Japanese, Spanish and Yugoslava languages.

The Curtiss Candy Company has a very enviable safety record. During the past 6 months, eight of their plants have been awarded Safety Citations that represent more than two-and-a-quarter million man-hours worked without a lost-time accident. Their accident frequency, the yardstick used to measure the effectiveness of a safety program, is less than half the frequency for the confectionery industry.

The need for such a program designed for Displaced Persons is illustrated by the fact that during one month, the company experienced only three minor lost-time accidents. In each case, the accident involved a D.P. unfamiliar with certain safety regulations.

New Cotton Bandage

(From page 31)

the Office of the Surgeon General recently requested manufacturers to undertake commercial production of the conforming cotton bandage, specifications for which were prepared by the Armed Services Medical Procurement Agency from samples and information furnished by the Southern Regional Research Laboratory. The cotton textile industry has responded by commercializing the process and accepting orders for several million of the conforming bandages for the Armed Forces.

Pictures by courtesy of U. S. Department of Agriculture.

Rescue Equipment

(From page 33)

active membership of 90 volunteers. There are two assistant chiefs, and a captain and a lieutenant in each company, all elected annually by the members.

A complete list of the emergency equipment provided on the truck is given in the accompanying table.

Picture by courtesy of Mine Safety Appliances Co.

The Future Shows

York Harbor, Me.

September 11–12. Twenty-fifth Annual Maine State Safety Conference (Marshall House). A. F. Minchin, secretary, Industrial Safety Div., Dept. of Labor & Industry.

Cleveland, Ohio

September 16–18. Fourteenth Annual Ohio State Safety Conference. (Hotel Carter). Carl L. Smith, Secretary-Treasurer, Ohio State Safety Council, 2073 E. 9th St., Cleveland 15, Ohio.

Chicago, Ill.

Oct. 20–24. Fortieth National Safety Congress & Exposition. R. L. Forney, General Secretary, National Safety Council, 425 N. Michigan Ave., Chicago 11, Ill.

Cincinnati, Ohio

November 12–13. Second Annual Greater Cincinnati Safety Conference & Exhibit. (Gibson Hotel) Kenneth R. Miller, Coordinator, c/o Greater Cincinnati Safety Council, 1203 Federal Reserve Bank Bldg., Cincinnati 2, Ohio.

Get Out the Scrap

SCRAP is desperately needed in industry today, but cattle can certainly do without it.

This picture shows some of the

odd pieces of iron and steel found in the stomachs of cattle. Millions of dollars annually are lost to cattlemen because of the internal injuries inflicted by nails, wire and other foreign bodies which reach the stomachs of livestock in their feed. Figures show that in one year alone about 6,000 beef carcasses were condemned and 750,000 beef livers were unable to pass inspection due to injuries to heart and other organs.

These fatal injuries can be prevented by using permanent (non-electric) magnetic separators in feed mills to remove tramp iron from the feed. Installed in chutes, conveyor systems and feed tables, the magnets catch all tramp iron and thus prevent contamination of feed. Machinery damage and fires caused by sparking are also prevented.

Picture by courtesy Eriez Manufacturing Company.

ANOTHER SAFETY DAVIS DIVISION FIRST-AID "FIRST"!

Davis, originator of the D-Carton First Aid System, pioneers another long-felt first aid need—a dressing that can be applied easily and quickly with one hand by the injured person himself.

Impregnated with a newly developed adherent substance the bandage with cotton lined 2" x 2", or 2" x 4" gauze pad stays put without slipping or unwinding.

CAN BE PUT ON WITH ONE HAND!

- Self-adhering—does not adhere to skin
- No tearing, no cutting, nothing to tie
- Costs no more than a conventional bandage-compress
- Packaged for the Davis D-Carton System
- Individually wrapped and sterilized

SAFETY DAVIS DIVISION

SELF-ADHERING GAUZE COMPRESS BANDAGE

Write for Bulletin #321

DAVIS EMERGENCY EQUIPMENT CO., INC.

64 HALLECK STREET, NEWARK, N. J.

(For further details, use the Reader's Inquiry Card on page 71)

Keep this Industrial Evil off your Payroll—with

PLY-GARB and PLYGLOVS

—the clothing that protects against Industrial Hazards

No matter how big or small your business is, you cannot afford to support "Exposuritis," the Scourge of the Industrial Worker. But you can afford to use MILBURN PLY-GARB and PLY-GLOVS, as barriers against this evil. Plastic Fiber Woven, Plastic Coated or Aluminum Coated – these protective garments guard the worker from the most commonly used acids, abrasives, caustics and heat. They are light and flexible, yet stronger than Airplane Cloth. And they do not irritate the skin. Whether the job calls for head, body or hand protection, MILBURN PLY-GARB and PLYGLOVS are more than equal to the test.

The MILBURN METHOD of Plant Safety is available to you without charge. At your request, these safety specialists will inspect your industrial operation, suggesting improvements in working conditions, for greater profits. Inquire *today*.

THE MILBURN COMPANY

Detroit 7, Michigan

Also makers of PLY CREAMS to guard against Industrial Dermatitis

Write, Wire or Call COLLECT for the jobber nearest you

THE FIRE FRONT

Flammable Liquid Handling Manual

THE Manufacturing Chemists' Association, Inc., has announced publication of a revised Manual Sheet TC-4 covering the unloading of flammable liquids from tank cars. The revised manual brings up to date standards adopted in 1942 and contains the best available information for consignees on the safe handling of such materials and the proper procedures to be followed.

The manual describes in detail safety precautions which should be observed by personnel preparing various types of tank cars for unloading, and contains pertinent regulations of the Interstate Commerce Commission as well as references to various state and local requirements with which consignees should be familiar. The manual also contains illustrations clarifying instructions in the text.

Remittance of 20 cents each should accompany orders for Manual Sheet TC-4 addressed to the Manufacturing Chemists' Association, Inc., Woodward Building, Fifteenth and H Streets, N.W., Washington 5, D. C.

Staggering Fire Loss

FIRE losses in this country are at an all time high:

Last year (1951) they totaled $730,084,000. This is $80,000,000 or 12.3 per cent more than for the preceding year.

According to a report made by the National Board of Fire Underwriters at its 86th annual meeting in New York, this three-quarter billion dollar loss is the highest in history.

The report, submitted by W. L. Nolen, chairman of NBFU's committee on statistics and origin of fires, noted that percentage-wise the increase was not unusual but after ten or more years of steady depreciation of the country's monetary standard, the losses have attained dollar levels that are "startling in their magnitude."

The statistics, compiled from the reports submitted by fire chiefs, reflected a rise also in the number of building fires in urban areas to over 400,000 in the year, an increase of 7.4 per cent. Of the specific categories, the manufacturing group showed the biggest rise of 12 per cent, while residential properties increased 4.8 per cent to the total of approximately 300,000 fires. Cities in the half-million to million population group had the greatest over-all increase in fires of 25.9 per cent.

Fire Hazards of Insecticide Fogs

AS A precaution against fire and explosion resulting from careless insecticidal fogging operations, the National Board of Fire Underwriters has cited 17 measures for reducing those possibilities. In addition, the board explained why fire and explosions occur from such operations and suggested seven safety instructions for operators to follow.

The precautionary measures, safety instructions, and technical information were reported in full in the board's latest research pamphlet (M 40) on "Fire and Explosion Hazards of Thermal Insecticidal Fogging."

According to John A. Neale, the board's chief engineer, early insecticidal products a dozen years ago included some 40 poisons and fumigants. Today the chemical compounds having bug-killing properties number into the thousands.

(For further details on advertised products, use the Reader's Inquiry Card on page 71)

He explained that since it became necessary to apply these more potent and costlier chemical agents in a broader and more economical manner than is attainable with the ordinary coarse and rapid-settling mechanical sprays, new developments appeared on the scene of this important technology.

These war-time developments, commonly referred to as "aerosol fogging," brought to the fore new treatment wherein the various toxicant formulations are thermally dispersed in an ultra-fine, fog-like manner. The persistent dense clouds that result are capable of being projected over large areas and of penetrating into the innermost recesses of confining structures.

Because the majority of present-day preparations contain insecticide concentrates dissolved in petroleum distillates or other mixtures, the degree of fire hazard depends on the flash-point of each type of carrier.

The report found that in the normal recommended applications, the concentrations of the combustible carriers dispersed in indoor fogging have been considerably below their flammable limits, even when ordinary combustible liquids, such as kerosene, are used. However, with improper use of dispersion, a heavy concentration can be reached which is within explosive limits and, therefore, dangerous. In some instances, the report stated, indiscriminate pest control operators have carelessly substituted low-flash naphtha preparations with disastrous results.

Causes of Fogging Fires

The principal hazard, Mr. Neale emphasized, was "personnel failure." As a means of overcoming this hazard, he suggested qualified service operators be issued a certificate of fitness and suitable danger warnings and safety instructions be affixed to equipment.

An analysis of the fires and explosions that have occurred in indoor fogging operations has placed the contributory causes into the following three elemental and related groups:

1. Operators
   - Inexperienced and improperly trained operators.
   - Careless operational techniques and faulty maintenance.
2. Methods
   - Failure to eliminate all sources of ignition within the building.
   - Failure to insulate combustible surfaces from the hot operating surfaces of the equipment.
   - Directing overheated air blast and hot fog against readily combustible surfaces.
   - Lack of proper checking of controls and treated areas—resulting in overfogging of the building.
   - Permitting the fogging equipment to operate at excessive temperature—causing a thermal breakdown of the insecticide fluid (releasing readily ignitable and highly flammable vapors, or explosive air-vapor mixtures).
   - Failure to provide sufficient circulation within the building to prevent localized accumulations of excessive concentrations of fog.
3. Materials and Equipment
   - Use of insecticides having dangerously low flash points.
   - Use of equipment which overheats the insecticide causing vaporization and thermal breakdown.
   - Use of equipment that will not operate consistently with common insecticides in a safe manner and therefore causes the fog to ignite.
   - Lack of proper maintenance of all components of the fog generating equipment, including storage and handling of flammable fuels, service lubricants, and insecticide preparations.

As a means of reducing the possibility of fire or explosion through

Nothing happens for weeks, months, even years at a time. So your Watchman gets lax. You get lax. Lulled by a false sense of security, you stretch your luck.

Then one weekend—SUDDEN DISASTER. Fire demolishes your plant. The work of a lifetime is reduced to rubble. Records show that more than 40% of burned-out plants never resume business. Your company could be among them.

There is little likelihood of disaster striking your plant on weekends—or during the week—if your Watchman is rigidly supervised by a DETEX tape-recording GUARDSMAN Watchclock. The GUARDSMAN gives you a minute-by-minute report of your Watchman's activities. If he sleeps, or skips rounds—you will know it mighty quick. The GUARDSMAN is especially vigilant on weekends and during long holiday closings—because it operates for as long as 96 hours, without the necessity of cutting the tape.

If you can afford to be complacent about weekend hazards to your firm's destiny, then you can ignore this message. But if you really want to insure dependable plant protection, write today for FREE GUARDSMAN folder. Better do it now.

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DETEX WATCHCLOCK CORPORATION
Dept. 8-F
76 VARICK STREET, NEW YORK 13, N.Y.
Sales and Service in All Principal Cities

(For further details on advertised products, use the Reader's Inquiry Card on page 71)

the use of certain flammable solvents in indoor fogging, the report cited the following 17 precautionary measures:

1. Evacuate all personnel except the essential operators from the building being treated.
2. Only experienced, responsible personnel who are thoroughly familiar with operating instructions and attendant fire safeguards should be permitted to operate fogging unit.
3. The local fire marshal or fire chief should be informed of the "fogging" operations with full details as to location, time, and materials to be used.
4. The use of listed equipment and insecticide formulations is recommended. No oil carrier should ever be used in thermal fog generators that has a flash point lower than kerosene. The carrier should have a flash point at least 40 degrees higher than the surrounding temperature of the area being fogged. Fog-generating machinery should be operated outside the building.
5. In exterior operations involving areas beneath buildings, the same safety precautions as required for interior fogging must be made to apply. Accidental entry of heavy concentrates of outside fog into basements through open windows must not be overlooked.
6. Doors may be blocked open where this will assist ventilation and fog dispersion. However, it is important that doors in fire walls and fire partitions, and doors at elevators, stairways, and other vertical openings, be kept securely closed.
7. All fires, open flames, and similar sources of ignition shall be eliminated from the space being fogged. Shut off main gas control valve and determine by visual inspection that all pilot lights, fire and any other open flames have been extinguished.
8. All electric power to the building should be disconnected by opening the main control switch. Telephone also should be disconnected.
9. The fog should not be blasted directly against any combustible object or material.
10. The nozzle and hose must be maintained unobstructed. The hose (hot when in use) should be wrapped with asbestos or insulated by asbestos board when it crosses any combustible material.
11. The dryness of the fog should always be checked before beginning the treatment. Under no circumstances should a wet fog be used unless the fog liquid is composed of a nonflammable carrier or listed by Underwriters' Laboratories, Inc., as suitable for such use.
12. The temperature gauge should be checked at frequent intervals, and if the temperature rises above normal the equipment should be shut down immediately for adjustment. Excessive temperatures may cause "cracking" of the insecticide fluid into highly flammable gases and vapors.
13. Buildings must be thoroughly ventilated before permitting re-occupancy.
14. Workers should be protected against fume or skin contact with any insecticide which may be considered hazardous.
15. Warning placards should be posted in the vicinity of the building being fogged. Danger warnings and essentials of safe operation should be permanently affixed in the form of a metal label in a conspicuous location on the fogging equipment.
16. Disorderly procedure and unsightly appearances are an invitation to trouble.
17. All equipment should be maintained in the cleanest possible condition and be regularly inspected. Appropriate fire extinguishing appliances should be provided and mounted in a location readily accessible to the operator.

Safety Instructions

In conclusion the report urged "serious consideration" be given to posting the following safety instructions on fogging equipment:

1. This equipment requires trained and experienced operators.
2. Use only insecticide fluid recommended by manufacturer of this unit. (Do not use fluids having flash point lower than kerosene or less than 40 degrees above temperature of area fogged.)
3. Avoid overfogging premises. Exercise constant control of solution feed.
4. Do not exceed maximum operating temperature. Comply

PERFECT BALANCE
PERFECT COMFORT

It's the Sellstrom No. 243 One-Piece Welding Helmet, made of tough fibre, designed for perfect balance and utmost comfort.

Can quickly be adjusted to fit any head. The helmet front is held in desired position by adjustable tension springs. Specially designed vulcoid headgear with genuine top grain hatter's leather forehead cushion held in place by snap fasteners. Hood perfectly balanced for increased comfort. Fitted with standard 2" x 4¼" window and improved patented lens retainer, permits changing lenses from the front. With or without plates.

Order from your dealer or write direct for a sample helmet for inspection purposes.

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MANUFACTURING COMPANY
Let Sellstrom Safeguard Your Eyes and Face
656 N. Aberdeen St., Chicago 22, Ill.

(For further details on advertised products, use the Reader's Inquiry Card on page 71)

with manufacturers' instructions for operation and maintenance of equipment.

5. Shut off all sources of ignition within building—gas and electricity.
6. Prevent any heated surface or equipment from contacting surrounding combustibles.
7. Evacuate building prior to fogging and post warning placard in prominent location.

Fighting Interior Fires

"ATTACKING and Extinguishing Interior Fires" by Lloyd Layman, former Chief of the Parkersburg, W. Va., Fire Department, deals with the effect of water on different phases of structural fires and outlines the latest fog fire fighting techniques. This significant contribution to the literature on modern fire fighting includes 71 illustrations and numerous case histories of actual fires with analyses of what was accomplished by use of water and wet water through fog appliances.

"Attacking and Extinguishing Interior Fires" can be used as text for permanent reference for the training of both experienced fire fighters and recruits. A significant chapter describes procedures and reasons for getting the maximum amount of heat absorption from a given quantity of water. Special attention is focused on utilizing the expansion and heat absorbing properties of water being converted into steam.

The book is available for $3.75 from the National Fire Protection Association, 60 Batterymarch St., Boston 10, Mass.

Climate Lab

(From page 38)

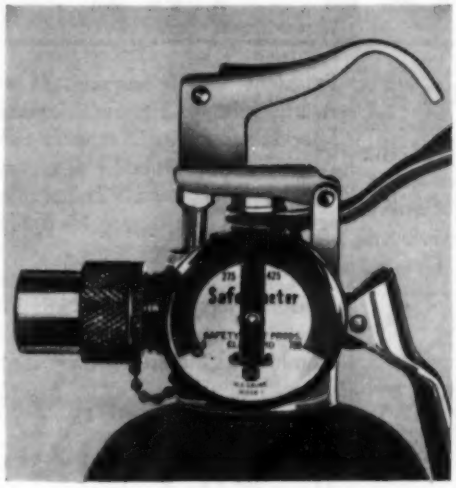
the arctic to the steamy heat of the tropical jungle.

The transitions into such radically different climates must be made gradually and with the greatest safety precautions, because the lives of scientists and technicians conducting the tests depend on the constant efficiency of test operators.

If a person exposes his flesh for any length of time in the sub-zero temperature of the arctic tests, severe freezing will result. Another danger is that of "bends" which results from too radical a change of air pressure. To counteract this, test personnel are taken into higher altitudes at the rate of 100 feet a minute in a specially designed compression lock.

Although an exhaust system carries off carbon monoxide when engines are run in the chamber, there is always the danger of a concentration of this deadly gas. A highly sensitive device detects the fumes and sets in motion an elaborate warning system.

DO YOU *KNOW* YOUR FIRE EXTINGUISHER WILL OPERATE?



EVERYONE Can Tell At A Glance That Every

Safe-T-meter

DRY CHEMICAL Fire Extinguisher

Is Ready To Go!

- Safe-T-Meter eliminates the risk of facing a fire with an inoperable extinguisher, when the needle is in the green zone!
- Gauge immediately discloses tampering, unreported use, or improper recharge!
- Expensive maintenance and inspection costs slashed!
- Nitrogen pressured—most efficient performance regardless of weather or temperature changes!
- Most complete portable Dry Chemical line — 9 models from 2½ to 30 lbs.—all Underwriters Approved!

SALES AND SERVICE IN ALL PRINCIPAL CITIES

Also Available: SAFETY FIRST'S Conventional Dry Chemical Line, Using CO_2 Pressure Cartridge—6 models—5 to 30 lbs.—Underwriters Approved.

Safety First PRODUCTS CORP., ELMSFORD, NEW YORK

(For further details, use the Reader's Inquiry Card on page 71)

INSIDE THE TRADE

Boyer-Campbell Elects

AT A recent meeting of the Board of Directors, The Boyer-Campbell Company of Detroit, Michigan, the following new officers were elected: William P. Goudie, President and Chairman of the Board; John F. Phillips, Executive Vice President in Charge of Sales; Robert G. Campbell, Vice President, Secretary and General Manager; James McMillan, Vice President and Treasurer.

At the same meeting of the Board, the following were appointed: Fred W. Alcron, Assistant Secretary; Harold McGuffin, Assistant Treasurer; Kenneth McBetchie, Assistant General Manager; Clair Davis, Sales Manager.

For Safety
Guardi-Ann Hat

Combines utmost protection and style. Exclusive patented features found in no other hat.

Write for Free Sample or Order Direct from us

$15.00 dz.

CHIC MAID HAT MFG. CO., Inc.
630 HIGH STREET
BUFFALO 11, N. Y.

New Kidde Facilities in L.A.

A NEW 6,000 square foot office, showroom, and service building was opened recently in Los Angeles, by Walter Kidde & Company, Inc. It is located at 4845 West Exposition Boulevard, and triples the facilities available for Kidde's west coast district's organization. Sales and service of industrial products will be under the direction of Fred Buckley, while sales of equipment for aircraft will be headed by John Noble.

Included in the new building is a display room for fire protection products in addition to expanded recharge and repair facilities with complete hydrostatic testing equipment for all types of high pressure cylinders. About one-third of the building will be used as office space with the remainder devoted to showroom and service space.

M.S.A. President Honored

GEORGE H. DEIKE, president, treasurer and director of Mine Safety Appliances Company, has been cited by The Pennsylvania State College for distinguished achievement. In a special Honors Day program Mr. Deike, an alumnus of Penn State's class of 1903, received a special medallion and an illuminated parchment scroll from the college president, Milton S. Eisenhower.

Mr. Deike and four other prominent alumni were chosen for the award by the Penn State Board of Trustees because "their personal lives, professional achievements and community services best exemplify the objectives of their alma mater."

Mr. Deike, a native of Brooklyn, attended grade and high schools in Pittsburgh, then interrupted his education to serve during the Spanish-American War as a member of the 14th Pennsylvania Volunteer Division. Upon his discharge in 1899 he entered Penn State, receiving the B.S. degree in mining engineering in 1903.

From 1903 to 1912 he served successively as a mining engineer and mine superintendent of Pennsylvania and Ohio coal companies. Then he joined the U. S. Bureau of Mines as a mining engineer. In 1914, however, acutely aware of the need for modern safety equipment in mining, he joined a fellow-Penn State alumnus and associate in the Bureau of Mines, the late John T. Ryan, in organizing Mine Safety Appliances Company. Since then the firm has grown to major size in the manufacture of approved safety equipment—not only for mining but for all industry.

THE SURTY MFG CO: INC. 4139 W. KINZIE ST. CHICAGO 24

FOUNDED for SAVING LIFE, LIMB and SIGHT by

(1) Providing Safety for Machines, Point of Operation Lighting, First Aid and Magnifiers also Eliminating Dust Conditions.

(2) Securing cooperation of Worker in using Safety Guards

(3) Placing a complete SAFETY program under a MONEY BACK guarantee of increased output, sufficient to cover the cost annually.

NATIONAL SERVICE

IS AVAILABLE ON COMPLETE OR PARTIAL JOBS, THE ORDINARY OR UNUSUAL, BECAUSE OF OUR 40 YEARS EXPERIENCE.

(For further details on advertised products, use the Reader's Inquiry Card on page 71)

Sellstrom Expands

AT THE Chicago factory of the Sellstrom Mfg. Co., the floor space has recently been increased by about 35%. In addition, a branch factory has been established and is now in full operation at Grayslake, Illinois.

To achieve a 75% production increase, much new equipment has been installed. Three additional plastic moulding machines have been added, making a total of seven. The largest of these machines will mould two welding helmet window frames in one operation. Other new equipment includes a revolving drum for automatically cleaning the surplus plastic from goggle eye cups and helmet window frames, a newly developed machine using emery cloth to bevel the edges of welding plates, an electronic grading machine, and an atomic oven for hardening lenses.

The stock and shipping rooms have also expanded to permit prompt service on a considerably larger volume of shipments.

New Safety Director for Inland Steel

RAY E. WINTER has been appointed Safety Director for Inland Steel Products Company, Milwaukee, Wisconsin. Active in national safety circles for the past 11 years, Winter is a member of the Power Press and Forging section of the Executive committee of the National Safety Council. He is affiliated with the American Society of Safety Engineers.

He has been active in local safety affairs, helping to organize a Milwaukee chapter of the Associated General Contractors Safety Schools. He is a panel member of the Milwaukee Association of Commerce Safety school and is a past executive committee member of the West Allis Industrial Safety Council.

W. H. Brady Co. Appoints

THE W. H. Brady Company of Chippewa Falls, Wis., manufacturers of adhesive safety signs and pipe and wire markers, has announced the recent appointment of Glen Preston Burns as manager of advertising and sales promotion. A graduate of Marquette University's College of Journalism, Mr. Burns has been associated in advertising, sales and public relations capacities with "The Milwaukee Journal," Allis-Chalmers, and Westinghouse.

Jessel S. Whyte

MR. JESSEL S. WHYTE, president and general manager of the Macwhyte Company died recently at his home in Kenosha, Wisconsin. In addition to his connections with the wire rope manufacturing company, Mr. Whyte was very active in civic and philanthropic services for the community.

Born in Chicago on Nov. 25, 1890, he was educated at University High School and Cornell University, with post-graduate studies in metallurgy at Sheffield University in England. During World War I he served as a captain in the army engineers.

Whyte started his career with Macwhyte Co. in 1905 in Coal City, Illinois. After his studies in England and apprenticeship in Scotland, he returned to Macwhyte in 1914 as a foreman and later as superintendent in the wire mill. On his return from war service in 1919, he became general superintendent of the company.

Mr. Whyte was appointed successively as sales manager of the eastern territory, assistant general manager, vice president and general manager, and finally in 1937 president and general manager.

His death on May 28th followed a prolonged illness. He is survived by his wife, four daughters, and six grandchildren.

"WOVEN-Gards"

BETTER HAND PROTECTION
at amazing low cost

"Woven-Gards" are hand protectors, mitts, pads and sleeves made of a new long wearing safety material. They provide flexibility, comfort, resistance to abrasion and cutting far beyond that of anything used before. They are extremely oil-absorbent and do an excellent job when handling oily, slippery sheets. The porous weave makes them one of the finest protectors for handling lower temperatures. Enthusiastic users say they have never seen values like "Woven-Gards." Excellent protection at lowest cost. Send now for descriptive folder and prices.

INDUSTRIAL GLOVES COMPANY
A Corporation
1751 Garfield Street, Danville, Ill.
(In Canada: Safety Supply Co., Toronto)

To be sure of the Genuine — Steel Grip INDUSTRIAL Safety Apparel TRADE MARK — Demand this Trade Mark

(For further details on advertised products, use the Reader's Inquiry Card on page 71)

industrial Hygiene

ASSOCIATE EDITOR
JACOB A. GOLDBERG, A.M., Ph.D.

Industrial Ventilation Manual

A SECOND edition of the manual "Industrial Ventilation" has been published by the American Conference of Governmental Industrial Hygienists as a guide to recommended practices. The volume is a practical book written for those people interested in the design and installation of industrial exhaust systems. This edition offers no basic change over the first edition which has been out of print for several months. Included are over 500 drawings. The manual can be purchased for $3.00 from the Committee on Industrial Ventilation, P. O. Box 453, Lansing 2, Mich.

Chromic Acid Data Sheet

RECOMMENDED practice for the handling and use of chromic acid (chromium trioxide) is given in Chemical Safety Data Sheet SD-44, published by the Manufacturing Chemists' Association, Inc.

Chromic acid is classified by the Interstate Commerce Commission as an oxidizing material, and its power is intensified in the presence of other strong acids. Concentrated solutions at elevated temperatures attack common metals.

The Data Sheet lists the important precautions which must be observed to protect personnel who handle the material. Proper methods for shipping, labeling, storage, unloading and emptying containers are described. Personal protective equipment, employee education and instructions for physical examination and medical treatment are also outlined.

Many years of experience have shown that chromic acid can be safely stored, handled and used if the hazardous properties are thoroughly understood and proper safeguards and equipment are always employed.

Copies of Chemical Safety Data Sheet SD-44 may be obtained from Manufacturing Chemists' Association, Inc., Woodward Building, 15th and H Streets, Washington 5, D.C., at 25 cents remitted with order.

"Air Locks" in Atomic Plants

"AIR LOCKS" between "hot" and "cold" pressurized zones are being used to protect personnel against deadly air-borne contamination in atomic plants and laboratories, it was disclosed recently at the spring meeting of The American Society of Mechanical Engineers at the University of Washington.

New materials produced by nuclear fission, "more poisonous than anything previously known" are being processed on an industrial scale, and call for "extraordinary measures" to provide adequate protection for personnel working in close proximity with this type of substance, W. W. McIntosh, staff engineer, General Electric Co., Richland, Wash., told the ASME.

Mr. McIntosh said the principal sources of air-borne contamination were gases and vapors evolved during processing, dusts resulting from evaporated solutions and particles released during handling of solid materials. Protecting workers against these is a job for the ventilation system of the plant or laboratory, he declared.

Radioactive materials are dangerous to living matter in two ways, Mr. McIntosh pointed out: one, by virtue of damaging radiation, and two, by poisoning on entrance of the material into the body.

"Materials of the first classification must be handled remotely and from behind shielding," said Mr. McIntosh. "Arrangements for protecting personnel within operating buildings from the hazard of these materials is, in some respects, the less difficult, largely because of the necessary remoteness of the operator from the source of danger."

Toxic Properties

Handling radioactive materials which are not emitters of dangerous radiation, however, is another matter, he said, explaining that it would be quite simple except for the "extremely toxic properties" of many of these substances.

"Previous industrial and chemical experience included processing many highly poisonous materials,

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Hood's scientific "dip process" precisely controls the amount and viscosity of latex coating on each glove—assures the proper thickness and flexibility needed to make each glove most efficient for the type of work for which it's intended.

Hood's experience, equipment, electronic control and "on the job testing" result in uniform and safer industrial gloves.

Hood makes a complete line of industrial rubber gloves to meet every job requirement. Write today for colorful catalog featuring the Hood Glove Guide which shows you "how to choose the RIGHT Glove for EACH job."

hands are vital..protect them with HOOD GLOVES

HOOD RUBBER CO., Watertown, Mass.

(For further details, use the Reader's Inquiry Card on page 71)

but some materials encountered in nucleonic work are more poisonous than anything previously known," the G.E. engineer said.

In addition to providing protective ventilation for normal processes which take place in hoods and equipment, design consideration must be given to the effects of all types of accidents such as explosions, fires, spills and other personnel errors, said Mr. McIntosh.

"An accident might make a room, or possibly a whole building unsafe for occupancy; consequently, all practicable measures must be provided in the design for limiting the spread of radioactive contamination in the event of such an occurrence," he declared. "This is achieved by compartmentation of the building to such an extent as is compatible with efficient operation, and by design for controlled direction of air flow."

In designing for directional control of air flow, he said, one method is to provide controlled differential air pressure between areas of different degrees of hazard. These areas are usually designated as zones, the uncontaminated areas being termed "cold" and the areas of greater risk termed "hot."

Flow Toward Hazardous Side

"The zones of different hazard levels are completely separated structurally," Mr. McIntosh explained. "Access between zones is through air locks. Within each zone, air is supplied to areas of least risk and exhausted principally from equipment, hoods or other areas of highest risk. Ventilation balance within the zone is such that flow through doorways is always toward the more hazardous side.

"The air locks are not ventilated, but on opening the door toward the 'hot' side air will leave the air lock toward the zone of lower pressure. When the air lock door to the 'cold' side is opened air will flow from the higher pressure area into the air lock; thus, air movement is in the proper direction. Air lock doors may be interlocked to prevent simultaneous opening which might upset the ventilation balance."

A modulating damper is provided in the exhaust system to maintain a constant exhaust pressure so as to hold the quantity of air exhausted at a constant value, he pointed out, adding that separate modulating dampers maintain their respective zones at pre-set pressure levels.

Mr. McIntosh said another method of designing for controlled direction of air flow was to devise an architectural and ventilation arrangement wherein air is admitted to the cold zones and exhausted from the hot zones. Both systems are effective, he said, the choice of system being based on a detailed study of the operations to be performed in the building, heating and

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with BRADY SAFETY SIGNS
Here's an AMAZING BRAND NEW SAFETY SIGN that will be welcomed by Safety Men! Brady Safety Signs stick to wood, glass, metal, concrete, etc. without moistening. May be applied to any clean surface in a jiffy. No screws, nails, bolts or skilled help necessary. All you do is peel from card, apply where wanted and the sign is up to stay.
Brady Safety Signs are made of durable cotton cloth, Silicone Coated to resist dirt, grime and moisture. CONFORM TO ASA Standard Z35.1-41. Select your requirements from a complete catalog of standard safety messages. Cost only a few cents per sign. Immediate delivery. Specials made to order.
WRITE FOR Free SAMPLES AND USEFUL CATALOG
WIRE MARKERS
PIPE MARKERS
SAFETY SIGNS
PRINTED SCOTCH-TAPE
MARKS & STENCILS
MANUFACTURERS OF SELF-STICKING PRODUCTS
W.H. BRADY COMPANY
1656 E. SPRING STREET • CHIPPEWA FALLS, WIS.
(For further details, use the Reader's Inquiry Card on page 71)

cooling loads, and structural and architectural arrangements.

Under the first system called the "Zone pressure ventilation system," he said, maintenance of design pressure differentials between zones depends on the operation of the zone modulating dampers. If, in the event of failure of any of these dampers or for any other reason, the designed differential is lost, alarms are sounded and corrective action must be taken.

"The provision of one source of supply air and one exhaust system for all zones avoids the danger of zone pressure differential violations which might be caused by failure of one of several separate supply or exhaust systems," he said. "This alone is a determining factor in over-all design; since reversal of air flow which might be caused by the failure of a single fan cannot be tolerated in some buildings for even a few seconds.

Emergency Procedure

"In the event of power failure it is seldom practicable to operate the entire ventilation system on auxiliary power supply. This contingency is usually met by providing exhaust ventilation only, at a reduced rate, with all automatic dampers on the supply system assuming an open position. Zone pressure differentials are not maintained under these conditions, but air flow is provided in safe directions. Ordinarily, operations within the building are curtailed as much as possible during power failures.

"Variations of this basic system have been used, but each departure usually involves the risk of failure of the additional component and the possibility of a resulting unsafe condition. The effect of failure of each component of the system (dampers, fans and controllers) must be studied, and, insofar as possible, provisions must be made for each component to 'fail-safe'; that is, to assume such a condition in failure that the safety features of the system will not be compromised."

With proper planning of space and processes it is frequently possible to provide a ventilation system which will insure air flow in safe directions without zone pressure control. Mr. McIntosh described such a system, which he called a "series flow system."

"With the series flow system rather high rates of air change are required to satisfy comfort conditions in the zone of final air use," he said. "Special care must be exercised to prevent drafts from supply terminals and through doors. Excessive air movement may cause the spread of contamination within the 'hot' zone or from an 'intermediate' zone to a 'hot' zone as well as personnel discomfort.

Regarding the problem of disposal of the air-borne contamination after it is directed into the exhaust ventilation system, Mr. McIntosh said that in general, the particulate matter is removed from the air stream by filters and gaseous matter is removed by scrubbing. As a further safeguard, the final discharge point of exhaust ventilation may be from a stack 200 or more feet in height.

"Despite the remarkably high efficiencies attained with filters and scrubbers there still remains the necessity for achieving dilution and dispersal of the ventilation exhaust from certain buildings, particularly from those in which processes are carried out on a production scale," he said. "For certain processes, where such control can be arranged, it is the practice to discharge process exhaust only during those periods when weather conditions are favorable to wide dispersion and consequent good dilution of the exhaust air. Well equipped weather stations are usually maintained to supply the advance weather information required for this control."

Mr. McIntosh said an extensive program of air, dust, vegetation and wildlife monitoring over a wide area is maintained on a continuing basis to test the effectiveness of these measures at the G. E. works.

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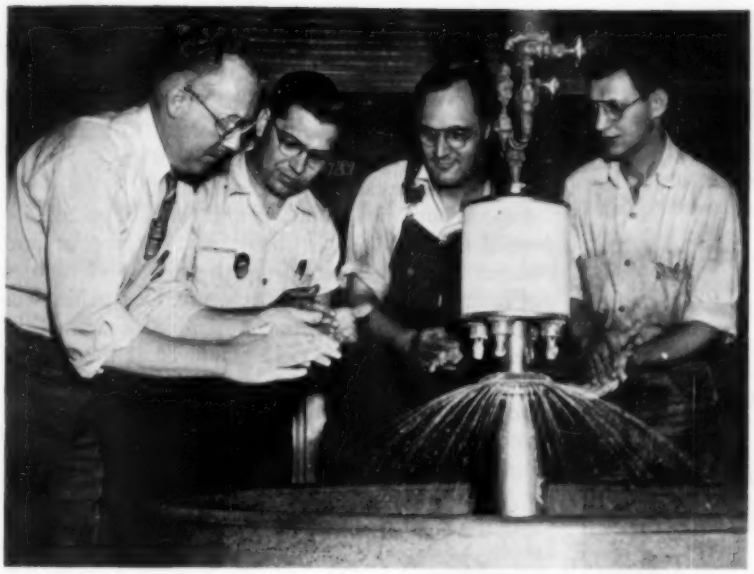
AID DEFENSE
MORE SCRAP TODAY... MORE STEEL TOMORROW
YOUR JOB IS CLEAR
-- GET IN THE SCRAP
to keep steel coming
NON-FERROUS SCRAP IS NEEDED TOO!



A practical demonstration on how to prevent dermatitis at Allis Chalmers Mfg. Company.

Circular washfountain in use at Colorado Fuel and Iron Corp., Pueblo, Colorado.

Two-person semi-circular washfountain in use at James Mfg. Co., Ft. Atkinson, Wis.

By CHARLES H. BERENGER
Bradley Washfountain Co.
Milwaukee, Wis.

FEATURE

This is the first of three feature articles concerned with Washroom Sanitation. The next two articles of the series will be published in the August and September issues of SAFETY MAINTENANCE & PRODUCTION.

All Hands on Deck

Soap and water is the first line of defense against industrial dermatitis, a fact which means that workers must have good facilities for washing up.

For detailed descriptions of washroom products, see pages 262–282 of "Best's Safety & Maintenance Directory": 1952–53 Edition.

WHETHER it be on board ship or in industry, it is vitally important that all hands be on deck every day if costs are to be kept down and production schedules maintained. However, many man-hours are lost daily because industrial dermatitis makes it impossible for workers to use their hands.

Dermatitis frequently occurs among men and women whose work brings them into close contact with cutting and lubricating oils. This is especially true of new employees who have never before been subjected to the oil and dirt prevalent in factories and consequently are more susceptible to skin irritations.

Oil Dermatitis

Several theories as to the cause of oil dematitis have been advanced. Among these is that fine, sharp metal

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Approved by State Fire Marshals, Fire Departments. Listed by Underwriters' Laboratories. Used by the Armed Forces.

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(For further details, use the Reader's Inquiry Card on page 71)

particles in cutting oil cause minute abrasions and cuts which later develop into a rash. Another theory is that infection is the chief factor and that the germs responsible are passed on in the oil from one man to another.

Exponents of the first theory thought that filtering the oil and thus keeping it as free as possible from metal particles was the answer to the problem, while those who believed in the infection theory thought that sterilization of the oil by heating or by the addition of germicidal chemicals would do away with dermatitis.

Experience has shown that neither filtering nor sterilizing cutting oils was sufficient to solve the problem, and gradually the belief developed, which is accepted today, that in the prevention of dermatitis, the emphasis must be put not on cleansing the oil but on cleansing the worker.

Experiments with groups of workers under actual industrial conditions have shown that by regular and vigorous attention to removing the residue of oil and dirt from the skin after each exposure, long strides will have been made toward the prevention of dermatitis. With over 60 million persons employed at the present time, it is safe to assume that not all of the 120 million hands are being washed properly. For those plants which do not have adequate facilities, the washroom problem can be quickly and economically solved by the installation of the modern group washroom fixtures which have been designed for industrial use. These fixtures have many sanitation, personal hygiene, and maintenance advantages over the individual washbowl.

Washfountains afford the utmost in sanitation so important in the treatment of dermatitis because they allow users to wash in clean, running, tempered water. They are convenient and easy to use, save time, and are attractive in appearance as well as extremely durable. They are available in precast stone and marble, enameled iron and stainless steel. There are models, sizes and types available for every conceivable requirement, and the wide range in prices makes them equally suitable for large and small companies.

In the accompanying illustrations, many of the advantages of washfountains are apparent, and washroom engineers connected with the manufacture of this equipment are available at all times for consultation and layout assistance.

Pictures by courtesy of Bradley Washfountain Co.

Special soap used by munition workers shows the presence of T.N.T. on the skin by turning red. The girls know the T.N.T. has been all washed off when the red color has disappeared.

Cities Dirtier, Health Hazards Increase

AIR pollution, popularly known as smog, is making American cities dirtier and less healthy places in which to live, according to an article in the May issue of *Scientific American* summarizing a three-year investigation at the Stanford Research Institute in Los Angeles.

The article, written by Drs. A. W. Zarem, chairman of the National Air Pollution Symposium, and W. E. Rand, assistant director of the Los Angeles Division of the Stanford Research Institute, concludes that the murky air of our cities "is not merely a nuisance but can be a serious threat to our health."

Air pollution, the researchers point out, is definitely on the increase. Moreover, the problem is no longer simply one of smoke and dirt. The presence of high concentrations of chemical wastes, which can combine

in an infinite number of combinations of largely unknown effects, constitute a serious hazard.

The conclusions reached in the Stanford study are based on an intensive investigation in the Los Angeles area, probably the largest research effort ever undertaken in this country to determine the nature of smog. During the three-year period of the study, which will continue, daily routine analyses of the various elements found in the air were made and subsequently studied by all known means of analytical chemistry, including infrared and ultraviolet spectroscopy, X-ray diffraction, mass spectrometry, chromatography and a variety of microscopic techniques.

Many Contaminants

Chemical wastes, it was discovered, are responsible for several medical complaints common in the area, particularly eye irritations. They also appear to account for poor visibility during days when smog is especially prevalent.

Air pollution, the article points out, is caused by no single impurity but is a complex mixture of gases, solid particles and liquid droplets. The problem of finding out what contaminants are in the air, and what concentrations of specific substances are harmful to humans and plants, is a huge research undertaking. The work under way in Los Angeles is, according to the research group, only a beginning. Moreover, they say, analysis of what is in the air is only one part of the research problem. The effect of specific substances on the health of urban dwellers has yet to be intensively studied. The Stanford scientists urge a concentrated national effort to determine how polluted air affects the health of city dwellers by testing individual air contaminants on animals to identify the harmful substances and establish permissible levels of pollution.

In measuring the harmful substances in the Los Angeles area, the research group found that each day some 2 million automobiles, trucks and buses burn a total of 4 million gallons of oil and gas, releasing nearly 4 billion cubic feet of exhaust. This means that more than 125,000 tons of contaminated air goes into the atmosphere each day from this one source. Los Angeles, including its industries, also burns 21,000 tons of fuel gas, 7,300 tons of fuel oil, 260 tons of Diesel oil and 170 tons of coke each day. In addition to this outpouring, huge amounts of chemical vapors are released daily. These various wastes react with one another in the air, perhaps forming compounds of unknown chemical composition.

In attempting to determine the specific cause of eye irritations in the Los Angeles area, the researchers sought to find what ingredients or combination of ingredients was responsible. Sulphur dioxide had long been suspected. To test this theory, individuals were exposed to sulphur dioxide in a special "smog chamber." It was found that sulphur dioxide did not cause eye irritation, nor did any of the other known Los Angeles pollutants. A combination of nine of these, however, were found to be responsible for the irritation.

Smog, the Stanford group found, possesses uncommonly strong oxidizing powers. It is thought that the oxidizing material in smog may combine with hydrocarbons and other organic compounds in the air to produce the irritants and noxious characteristics of smog. The chemical nature of the oxidizing ingredient in Ozone is suspected of causing smog discomfort because it attacks rubber. The fact that rubber products crack in a relatively short time in smog areas gives weight to this theory.

The summary of the three-year research program which forms the basis of the article will shortly be supplemented by the release of additional research data.

Senior Citizens

THIS is an attractive and acceptable term to apply to men and women in the seventh decade of life and beyond. It was used in setting aside the month of May 1952 as Senior Citizens month, under the sponsorship of various public and private agencies, in cooperation with the New York State Joint Legislative Committe on Problems of the Aging. The purpose in setting aside this period of recognition was to develop positive attitudes toward *(Continued on page 67)*

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THE INDUSTRIAL Nurse

EDITOR

ROSAMOND J. WEBSTER, R.N., A.M., Ph.D.

Finding the Needs

A PRELIMINARY survey of industries in a mid-western county was completed some months ago by local, state and federal agencies concerned with health maintenance in industrial establishments. The survey covered 118 concerns with 26,000 workers. From the standpoint of number of workers exposed to materials or conditions capable of affecting health, the leading exposures were to skin disease producers, petroleum products, dust, organic solvents, and metals such as iron, steel, aluminum, and zinc. Of the total, 7,100 were exposed to skin disease producers; 1,300 to carbon monoxide; and 1,200 to lead. Encountered in smaller numbers were exposures to the more toxic materials, such as silica dust, chlorinated hydrocarbons, cadmium, cyanide, and mineral acids. In addition, large numbers of workers were employed under conditions of excessive noise, extreme changes of temperature, and repeated motion, such as that from operating punch presses.

To meet these and other conditions observed, the official agencies could be called upon to provide the following: (1) Studies of the working environment, followed by suggestions and assistance in correcting those conditions found to be detrimental to health. (2) Advice to industry concerning the relative toxicity of materials and processes, particularly new substances prior to their introduction into industry. (3) Consultant services to plant physicians, nurses, and physicians in private practice who need help with industrial medical problems. (4) Provision of necessary laboratory service of both a chemical and physical nature. (5) Health education assistance for management, labor groups, and professional staff. (6) Assistance to industries in starting in-plant health services, and helping small plants in organizing part-time services. (7) Promotion of adult hygiene programs in the fields of chronic diseases, mental hygiene, tuberculosis control, and nutrition. These are all guide posts to industry and industrial nurses. They merit careful study and consideration.

More About Obesity

INVESTIGATIONS over a period of years by the statistical division of one of our largest life insurance companies reveal that one of the subtler and more serious health hazards of our time is obesity. It develops so gradually and under such pleasurable circumstances that treatment is often difficult. The victim of his own indiscretions, feeling hopelessly trapped in his own fat, tends to rationalize his condition. Not only can obesity become a physical impediment in itself, but it may predispose its victims to heart disease, diabetes, liver disease, and other complications. Most men and women are living to the ages in which adipose tissue is easy to acquire and difficult to lose. The high level of income has permitted many persons to indulge their desire for food and drink, and too often this means high calory intake. Because of the recent high cost of first class protein foods, many are utilizing increased carbohydrate intake as a substitute.

On the favorable side, it might be mentioned that there is a growing interest in girth control and the bathroom scale has come to play an important part in the daily lives of many. Obesity is a condition that is not of itself pathological, unless overweight is so massive that it seriously interferes with normal activities and work. This is especially true of older workers, and guidance in weight control can do much to aid them in the maintenance of health and the prevention of some of the major diseases of middle and later life. Many statistical studies and reports have been published on the contribution of obesity to such diseases. There is no longer any doubt about the relation between cause and effect in this area.

What to do? Well, the industrial nurse can be of much help. But by herself she should not attempt to prescribe a regime of dieting and fasting to reduce much in weight. This should only be done by the physician after a medical examination. General advice regarding the omission from the diet of candies, ice cream and other high calory foods is permissible. But, advice

regarding the use of reducing drugs—that is for the family physician to decide.

Long Life and Hypertension

OVER the last one hundred years the life expectancy of the population has approximately been doubled, so that at present the average life span is nearing three score years and ten. It should be recognized that this is in large measure the result of a marked decline in infant mortality, improved nutrition, the greater safety of children, the spectacular achievements of surgery, and the successful efforts against parasites and microbes. The part that the antibiotics have played in recent years will become more evident in the decades ahead. Such victories have thrown into relief our failure to deal effectively with rheumatic fever, cancer, arteriosclerosis, and essential hypertension. Further, emphasis has been placed on the fact that until the causes of these and other conditions are known real cures for them are unlikely to be found.

Of the four diseases mentioned essential hypertension is the most prevalent. One study reports it occurs in 5 per cent of young adults, 30 to 40 per cent of those over 40 years of age, and 65 to 75 per cent of all persons over 70. It is responsible for many deaths—60 per cent cardiac, 20 per cent cerebral, 10 per cent renal—in all over 50. Surgical treatment has somewhat lowered the fatality rate of hypertension in selected cases, though there is still some difference of scientific opinion on the effectiveness and desirability of such measures in many instances.

The question is—and it is fundamental—how much can be accomplished by purely medical measures for a disease the cause of which is as yet unknown. Many patients with hypertension need psychiatric attention, for it is frequently observed that hypertension indications are concomitant with emotional upsets and experiences. Various drugs, low sodium diets, and physical measures have been tried and are being used with some efficacy in selected cases. But much still remains to be learned. In the meantime, workers showing evidence of hypertension may need proper medical supervision and treatment, hygienic advice, change of job, psychiatric referral and therapy.

Research Reports

THE layman reading reports of medical research projects that appear in the public press is frequently confounded. This is especially so if the report interprets the statements in a scientific paper read at some medical meeting or at the lectures of some national association of scientists—and does so in a flagrantly optimistic style.

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If we turn to the reports on the experimental drugs employed for the past few months in the treatment of tuberculosis, it is found that some publications accurately reported the conservative statements of experimenters. Others wrote up the same data in a fashion that led many TB patients who needed surgery for the treatment of their disease, to refuse to undergo such procedures. Irrespective of the ability of these drugs to destroy the tubercle bacillus, patients with extensive lung cavities need surgery—and no drug alone can help them.

These general comments apply in other fields as well. For instance, one well-known newspaper with competent scientific editors and reporters carried articles on cancer research. They were headed as follows: "Cancer is Detected by New Blood Test"; "Deep Cancers Temporarily Shrunk By Rare Nerve Virus from Africa"; "Test Ties Emotion to Cancer Growth." The reports of these three studies were carefully written up in semi-scientific language by highly competent and experienced reporters. On the whole, the data were of primary interest to those who were concerned with cancer research problems and who would not see the original papers until their publication months later in scientific journals. For the average layman with limited education, and lack of knowledge on what "Egypt Virus 101" means, the relation of "Hodgkins Disease" to the cancer problem, the place of "glutamic acid" in cancer tests—such articles are inappropriate. He may, however, come

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to the industrial nurse for interpretations. He may have a wife or other dear one suffering from tuberculosis or cancer. Her job is to provide simple, yet scientific, interpretations of news items.

Hearts and Industry

OUR aging industrial population raises some questions that cannot readily be answered. While it is true that older workers are more skillful, have a better attendance record, and on the whole are more reliable than young people, still the aging process takes its toll. Care must be exercised in the assignment of those 60 and over, with the emphasis on jobs in which severe physical exertion is not required. Coronary artery disease, like other forms of arteriosclerosis is seen chiefly in the middle and later years of life, and its prevention and progression are entirely beyond medical control at the present time.

The problem faced in industry of preventing further injury to hearts that are already damaged is one for which few general rules can be given. There are many instances of well-compensated heart disease in which the patients can perform non-strenuous types of work safely and satisfactorily. A certain proportion of persons who have had a single attack of coronary occlusion make a surprisingly complete recovery, and for a few years may be able to continue at fairly active work without appreciable lessening of their coronary capacity. Sooner or later, however, a second attack is almost certain to occur from which a satisfactory recovery is much less likely.

The problem of dealing with individuals subject to attacks of angina of effort is sometimes very difficult. If the attacks of pain are brought on by the work itself, the work should not be continued. On the other hand, if the occasional attacks do not occur at the place of work, then such activity may generally be continued. It is often the industrial nurse who notes the failings and illnesses of employees, even though they may not always report to the medical department. Hiding minor attacks to avoid the possibility of a lay-off is understandable. But such conduct may not be in the interest of the ailing worker himself, nor of the safety of fellow workers. The industrial nurse has a job to do, and that is to report all individuals to the medical director for medical examination when such action seems to be indicated.

Medical Service

HOW much and what kind of medical service should be provided in industry? This is an old question which always warrants study in newly established plants, and even in those which have been operating for years, with or without a medical department. A governmental industrial hygiene consultant has outlined current thought on this subject. He notes that if the function of a preemployment examination is to place the worker in a job most suitable to his physical condition, it must be complete, though it can be made routine. If the function is to promote the total health of the worker and if it includes proper job placement, individualized programs for the correction of remediable defects and the prevention of unoccupational disabilities, the initial history and physical examination must be complete and personalized.

The industrial nurse can play an important part in the history taking, though the examining physician should not delegate all of this responsibility to her. After the examination, in which a properly trained nurse can participate, as in taking height, weight, temperature, pulse, blood pressure and vision and hearing tests, the physician should discuss the findings and conclusions with the individual examined. Likewise, he should consider with the worker the future medical program for needed therapy and prevention. The findings should be interpreted in non-medical terms, and the job suitability should likewise be so defined that the personnel department will be able to make a proper placement on the basis of the medical department report.

A recommended classification is the following: (1) fit for any work in the plant, (a) without health defects,

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(b) with health defects that are minor, such as dental caries; (2) fit for selected work under medical supervision, (a) with a correctible health defect, as a hernia, (b) with a fixed health defect, as an amputated hand, (c) with a progressive defect permitting employment for a period; (3) unfit for any work in the plant. Workers should also be classified in (a) lifting, (b) left hand work, (c) walking, (d) work requiring fine vision, (e) work involving safety of others.

Disaster Planning

THE troublesome international situation causes many difficult hours for those concerned with national defense, medical care in times of emergencies, administrators of large industries working on national defense orders, and state and local officials involved in civilian defense programs. Many more are concerned, including the Red Cross, hospital, medical organization, police, fire, public utility officials, staffs, members, and others.

A consultant on industrial health to the Federal Civil Defense Administration notes that more than ever before industrial management needs all the guidance it can get in planning to cope with possible dangers resulting from enemy bombing attacks. A substantial portion of our national output—approximately one-third—is already devoted to defense production. It may increase considerably within the year. It seems to be the point of wisdom and caution for all industries to study the matter of civilian defense and disaster relief at this time.

Various manuals have been prepared and should be readily available and thoroughly understood by the medical department personnel, as well as auxiliary groups that may already have been organized for the specific purpose. In addition to the usual plans for employee protection, first aid and medical care, these plans must include provisions for possible emergencies arising from the release of hazardous materials used in many plant processes. Depending upon circumstances, it may be necessary to plan for plant evacuation, and also evacuation from adjacent areas which would not otherwise need to be cleared. In these and other related proposals and plans, team work will be necessary by top management, production, safety, medical, nursing, personnel and other divisions.

It is not to be assumed that these are matters in which industrial nurses can either take the lead, or fail to participate. She has her specific job to do, and should be well prepared to do it if and when a disaster of any kind should occur. Participation in plant exercises, and membership in a civilian defense unit are essential.

Senior Citizens

(From page 63) the elderly in our communities by breaking down various myths and half-truths that handicap the aged, and to focus attention on ways in which they can be helped.

Those 65 years of age and beyond are increasing rapidly in number. For instance, in New York State it is estimated that in 1952 a total of 1,375,000 men and women are over 65 years of age, or 9.1 percent. This represents an increase in this State alone of about 100,000 within two years. While the typical New Yorker in 1952 is 33.6 years old, in 1900 he was only 26.3 years old. In 1930, five of every 100 New Yorkers were 65 and over, in 1952, nine of every 100 are in that age group. So the tendency for further aging of the population is on the increase.

This trend poses many problems for industry and requires re-thinking on matters of preemployment and periodic examinations, standards for physical disability lay-offs, seniority, pension plans, application of social security benefits, whether or not to retain a compulsory retirement age requirement, part-time employment of over-age employees, adaptability of such workers for various types of jobs, and many more. Careful records kept by plant medical departments on absenteeism due to illness, attendance at the medical department, type of illnesses and injuries requiring emergency attention can be of much help to management in reaching decisions on the employability of workers over 65 in specific industries. The bare facts will tell the tale far more effectively than any out-of-hand decisions or those based on sympathy and good-will alone.

What's New...

For your convenience in obtaining descriptive literature of products listed here, use the Reader's Inquiry Card. Just write in the code number given with each item. Or send written requests to:

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EAR PLUGS FOR NOISE

(Use Code # 600 on Inquiry Card on page 71)

WHILE originally designed for light sleepers, night workers who must sleep in the day time and swimmers, it has been found that Mack's Ear Plugs have an important use in the industrial field.

Workers in the heavy industries; such as boiler plants, steel mills, heavy stamping works, forging shops, etc., often develop partial deafness from the incessant noise. The use of ear plugs lessens the noise and reduces the ear strain.

Mack's Ear Plugs are easily molded by the fingers to fit the ears. They are not sticky and can be used over and over by keeping them in a clean receptacle when not in use.

NEW "A" STAND SIGN

(Use Code # 601 on Inquiry Card on page 71)

A NEW and larger "A" standard safety sign has been developed by Eastern Metal of Elmira, Inc. in response to the great demand for the smaller version formerly introduced. A unique feature is the suspended design which prevents the sign from blowing over in strong winds or the backwash of passing trucks. The sturdy frame also has sockets for holding two flags. Several legends are available for different types of road and public utility maintenance work. A reflectorized finish for 24-hour visibility can also be provided.

The company also makes a complete line of accident prevention signs that follow the specifications of the A.S.A. and the U. S. Dept. of Commerce.

"STORM DOOR" FOR GAS MASKS

(Use Code # 602 on Inquiry Card on page 71)

TO MEET the problem of frozen gas mask valves in sub-zero temperatures and to eliminate curling of valves due to rubber solvents, Acme Protection Equipment Co. has developed a new type auxiliary valve designed for use with the company's gas masks.

Known as the Acme "Protect-A-Valve," the new product provides a secondary valve that fits over the regular exhalation valve. Thus, it serves the gas mask wearer in much the same way as a storm door protects the home.

The "Protect-A-Valve" is fully approved. It provides protection in temperatures ranging down to 50 degrees below zero, according to G. M. Glidden, general manager.

SELF-CLEANING SPRAY BOOTH

(Use Code # 603 on Inquiry Card on page 71)

SUCCESSFULLY overcoming the need for "eliminators" by a unique and effective design, an eastern manufacturer has perfected a Spray Booth which has been adapted for many different purposes, installed with perfect satisfaction to users in a number of sizes including single booths, down draft types, batteries of booths for small parts and giant automotive units.

Since the dependence upon paint-trapping eliminators increases the manufacturing cost and requires considerable maintenance, this marks an interesting and important step to industries whose products call for paint spraying. Made by Westfield Sheet Metal Works, Inc., the new booth combines a lower manufacturing cost in the equipment itself, freedom from down time and absence from frequent maintenance. The Water-Wall principle prevents buildup of pigments on the wall of the spray booth. Exhaust fans of competent capacity create a turbulence and agitation of the water-pigment-and-air, supplemented by specially designed baffles and scrolls, which effectively "wash" the air in a mist-laden vortex chamber, which is also kept free from pigmentation, and hence requires no cleaning. The fan and the circulating water pump contain the only moving parts in these improved spray booths.

WALL-ADHERING DISPENSER OF LENS TISSUE

(Use Code # 604 on Inquiry Card on page 71)

SIGHT safety station installation time has been slashed over half through the new jiffy Stick-Up Dispenser feature which makes goggle-cleaning tissue available right on the job. Instant lens cleaning protection is assured anywhere in the plant or office with the addition of this instantaneous mounting on the back of the Magic Lens Tissue steel dispensing unit for silicone-treated tissues which remove dust, dirt, lint and smears from goggles and glasses. Pre-Set adhesive mounting strips on the back of dispenser do away with screws and drills. Just stick it to machinery, metal, wood, glass, tile steel beams, plaster walls or any smooth surface.

PORTABLE HYDRAULIC CUTTER

(Use Code = 605 on Inquiry Card on page 71)

THE Model 20-B Guillotine made by the Manco Manufacturing Company is an hydraulic cutter that is light in weight, readily portable, and contains no components capable of igniting combustible vapors. The unit is available with power-operated hydraulic pumps or a hand-actuated hydraulic pump.

These hydraulic tools for high-speed production and maintenance cutting represent the latest developments in the use of high-pressure hydraulics in the design of compact, portable equipment for cutting chain, rod up to 1 inch diameter, wire rope 1¾" diameter, and power cable up to 3½ inches in diameter. With adaptations these tools may be used for riveting, punching, and crimping. This new equipment utilizes pressures up to 10,000 p.s.i. in contrast with pressures of 1500 p.s.i. generally considered high pressure in industry.

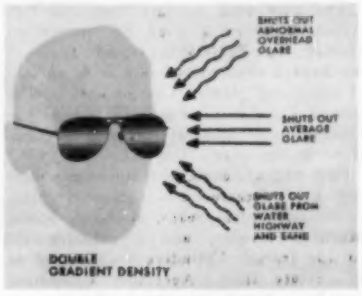
NEW SAFETY DRIFT

(Use Code = 606 on Inquiry Card on page 71)

COMBINING unusual features of safety and economy, the production of the CUSTANITE *Flex-Flo* SAFETY HANDRIFT, developed at the request of industrial and government safety engineers, has just been announced by the Custanite Corporation, manufacturers of the well-known line of *Flex-Flo* Safety Hammers.

In set-up work with machine tools, in die-making, broaching, or wherever it is necessary to pound a finished surface without causing marring, especially where working space is limited, machinists often use a "drift" of brass, lead, or some other soft metal, pounding it with a hammer. This dangerous practice frequently causes injuries to hands or eyes as well as lost time and work stoppage, as a result of flying metal or missed blows. Machinists improvise many forms of drifts, usually of lead or babbitt metal, but these are relatively expensive, because of their very short useful life. Moreover, being made of lead or babbitt, they invariably "mushroom" or chip after only a little use.

The new CUSTANITE SAFETY HANDRIFT was designed specifically to overcome the hazards and high hidden costs of improvised hand drifts. Its unique features include: Rivet-lok pinning which prevents the head from flying off the non-slip handle; a special analytically-controlled alloy which can't chip, flake, or spark; *Flex-Flo* construction (pat. pend.) which employs the principle of "Controlled Compression" to give extreme durability while simultaneously providing mushroom-free service.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DOUBLE GRADIENT DENSITY

SUN GLASSES FOR DRIVERS

(Use Code = 607 on Inquiry Card on page 71)

SUN glare, a major hazard of the highway for motorists, truck, and bus drivers, has been eliminated by the newest scientific development in sun glasses. The glare-ending feature is called "gradient density." The phrase refers to the use of a metallic coating on Ray-Ban sunglass lens developed by scientists of Bausch & Lomb Optical Company.

A metallic film thickness gradually decreases toward the center of the lens, which transmits only the useful light rays essential to clear vision. This coating at the top of the lens (single gradient density) gives drivers extra protection against direct overhead glare. When used, also, at the bottom (double gradient density), it eliminates reflected glare from shiny hoods, radiator ornaments, and chrome trim on both their own and passing vehicles.

Adequate eye protection against sun glare is important, not only as a safety measure for daytime driving, but for night driving as well, because loss in night visual acuity of up to 50 per cent can be attributed to the use of inadequate sun glasses during the day.

INSECT REPELLENT

(Use Code = 608 on Inquiry Card on page 71)

TO PROTECT field employees from the discomfort and possibility of accident caused by the distractions of insects, Medical Supply Company has recently introduced Lotshaw's Pellent in the unit system of first aid.

Among the features reported for Pellent is the fact that just a small amount rubbed on the hands, neck and face keeps mosquitoes, flies, ticks, chiggers and other insects away for hours. Easy to apply in cream form, it has a pleasant aroma, there is no stickiness, it will not stain or harm clothing, and it does not come off easily with perspiration. Each MSCo unit consists of six ⅛-ounce non-leaking tubes with safety spear caps for easy application.

Among the types of field personnel who can be benefited with this protection against insects are oil field and pipe-line workers, construction crews, lumbermen, river barge crews, utility men, railway maintenance and highway crews. Medical Supply Company also provides a companion product for field personnel: Poison Ivy Ointment, for protection against ivy, oak and sumac poisoning.

EASY DISPENSER MOUNTING

(Use Code = 609 on Inquiry Card on page 71)

THE Lightfoot Schultz Company in marketing a new giant soap dispenser has introduced a clever and most unique fixture, which does away with the replacement bugaboo of old—the necessity of drilling new holes and ruining costly ceramic tile, marble and other permanent wall material. Now, one merely places the Lightfoot Adapter Plate over the holes already in the wall. This plate of polished, corrosion resistant chrome on heavy steel is, as the name indicates, completely adaptable and will use the same holes previously drilled for the old installation, providing these holes are not more than six inches apart. Now, instead of hours of costly labor, and ruination of fine walls, it is merely a matter of minutes to fit this new Adapter Plate over the old installation and mount the dispenser rigidly to it. Also available are mounting plate adapters for fixing the dispenser to pipe over the wash basin.

NEW PLASTIC GOGGLE

(Use Code # 610 on Inquiry Card on page 71)

A NEW safety goggle, featuring a transparent plastic frame which provides a greater field of vision, is announced by American Optical Company, Southbridge, Massachusetts.

The new goggle is designed and recommended for wear directly over the eyes or over spectacles. It is particularly useful for frontal protection against foreign particles on machine and hand tool work, bottling, chemical and physical laboratory work, spot welding, light grinding, light chipping and light riveting.

WET-AND-DRY VACUUM

(Use Code # 611 on Inquiry Card on page 71)

A NEW "big brother" to the Hild Heavy Duty Portable Vacuum is now available through all Hild distributors. The new model is made with a 55 gallon tank which holds 5 bushels of dry dirt or 40 gallons of recovered liquid.

For easy handling, the entire unit is mounted on a heavy steel dolly fitted with a hinged handle and three ball-bearing casters. A two-inch, quick-opening gate valve permits the liquid contents of the tank to be easily emptied into a drain or gutter. The 20 foot vacuum hose is made throughout of oil-resistant synthetic rubber, wire reinforced for extra strength. Oil-resistant neoprene rubber is also used for caster tires.

Numerous attachments equip the Hild Vacuum to do a wide variety of jobs: to take up dirty scrubbing solutions, to recover coolant and to clean coolant sump tanks, to clean stock bins, overhead pipes and beams, walls, ceilings, machine tools, castings, etc.

The Hild Vacuum is always ready to pick up either liquid or dry dirt without adjustment or change of parts. There are no "preliminaries" for the careless or untrained operator to forget or neglect . . . no special precautions needed to guard against damaging the unit. It employs a "by-pass" motor which does not depend on the vacuum air stream for cooling. Thus, the motor cannot be damaged by dust or moisture picked up by the vacuum. A separate independent fan keeps the motor running cool.

PACKAGED FIRE SYSTEM

(Use Code # 612 on Inquiry Card on page 71)

PACKAGED automatic carbon dioxide systems are now available for installation by the customer. Designed and manufactured by Walter Kidde & Company, Inc., to protect normal industrial types of flammable liquid hazards of up to 6,000 cubic feet, the new system may be adapted for protection against some special hazards. However, custom-engineered installations probably will continue to be required for areas where hydrogen, carbon disulphide, butane, propane, etc., are stored.

The new total-flooding Standard Pak system answers a need for protection against the flammable liquid type of fire hazard encountered in a wide variety of industrial plants. Components of the new packaged systems are approved by the Underwriters' Laboratories and systems come in six sizes.

Each package contains temperature-rate-of-rise fire detectors and connector tubing, automatic control heads, discharge heads, Multijet nozzles, and a cylinder-supporting frame. Cylinders are shipped as a separate item. Accessory equipment may be ordered separately. The systems may be ordered with or without pipe and fittings.

Kidde's new plan for merchandising built-in carbon dioxide fire extinguishing systems makes it possible for smaller plants to provide relatively inexpensive built-in, automatic fire protection for hazards previously safeguarded by smaller portable equipment. Large industrial concerns will also find advantages in having compact low-cost packaged systems installed by their own employees.

PLASTIC-DOT WORK GLOVE

(Use Code # 613 on Inquiry Card on page 71)

A SAVINGS of at least 40% to industrial users of canton flannel work gloves has been made possible by the application of plastic dots, permanently set into standard 10-ounce canton flannel. U. S. Testing Co. reports show that the plastic dot fabric outlasted the usual fabric by well over two-to-one. Their report supported the findings of the Riegel Textile Corporation, which had also conducted exhaustive tests in their own laboratories and in normal everyday operations in large industrial plants.

The new gloves still retain all the lightness, flexibility and comfort found in regular canton flannel gloves.

ROOF REPAIR KIT

(Use Code # 614 on Inquiry Card on page 71)

A NEW Emergency Repair Kit for use in stopping sudden roof leaks is announced by The Monroe Company, Inc.

Assembled around Monroe Wet Surface products which can be used to repair roofs permanently even during rainstorms, the Emergency Repair Kit includes Wet Surface Ruffersealt (asphalt-asbestos waterproofing); Wet Surface Ruffersealit (plastic patching compound); special asphalt fabric; and a Monroe roof brush.

The company states that the kit is designed especially for industries, warehouses and other buildings which stand the risk of large losses through sudden roof leaks. It is compact and easily stored.

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As a convenience to executives, these new publications of manufacturers are offered by the Reader Service Department of SAFETY MAINTENANCE & PRODUCTION. To obtain copies write in the key numbers on the free-postage card below.

MATERIALS HANDLING

Sling Chains 200
American Chain & Cable Co., Inc. An extremely informative 8-page catalog describes and illustrates all types of sling chains. In addition to full specifications, the manual tells how to select the proper type, gives advantages and limitations of the various kinds of chains, offers pointers on the care and inspection of chains, and gives data on chain adjusters, hooks and magnet chains.

PERSONAL PROTECTION

All-Plastic Goggle 201
Bausch & Lomb Optical Co. The BAL-guard Eye Shield is fully described and illustrated in this 4-page SM&P reprint. The bulletin emphasizes the unique features of this light-weight all-plastic ventilated goggle which has a one-piece replaceable lens. Its resistance to impact is stressed and prices are included.

Sureseal Aprons & Sleeves 202
Surety Rubber Co. Synthetic rubber aprons and sleeves are described in this well illustrated 2-page bulletin. Available in three grades for light, medium and heavy duty, various styles of body and arm protective clothing are shown. The bulletin also has a list of commonly used chemicals against which the material offers maximum resistance and service life.

Heat-Resistant Gloves 203
C. Walker Jones Co. A complete line of gloves, mittens and hand pads for protection against hot objects are offered in this 4-page bulletin. The fabric is composed of hundreds of air-cell cushions that dissipate heat and ventilate the hand. Pictures illustrate various styles.

Plastic Welding Helmet 204
Jackson Products. A new type of welding helmet, molded from a phenolic-impregnated laminated fabric, is shown in this 2-page bulletin, which outlines its construction features and characteristics under use. The helmet also offers a new type of lens holder for easy replacement.

PRESS GUARDS

Safeguards for Punch Presses 205
Safeguard Mfg. Co. A pull-back type of guard that pulls the punch press operator's hands out of the danger zone and offers protection if the press repeats is described in a 4-page bulletin. Well illustrated, the brochure shows how the device's compact design requires no column in the aisle and how excessive pull back of the hand is avoided.

HEALTH & WASHROOM SUPPLIES

Antacid Analgesic 206
Bristol-Myers Co. A 6-page folder tells how Bufferin works fast to keep your workers working. It explains how rapid relief is given for simple headache, neuralgia, dysmenorrhea, and muscular aches and pains without upsetting the stomach. Directions for ordering the low cost industrial package are included.

Skin Protector & Cleaner 207
Chemical Specialties, Inc. A combination skin cream and cleanser for protection against industrial dermatitis is described in this 2-page bulletin. Applied before work, the cream shields the skin against irritants and forms a detergent lather at wash-up time. The bulletin lists industrial irritants and typical users, and also describes a cream dispenser.

Emergency Showers 208
Logan Emergency Showers, Inc. Full operating details of a new type of emergency and decontamination shower for fire, acids, caustics, radiological, bacteriological and other contaminants are offered in this well illustrated 6-page folder. Unique features emphasized are the multiple sprays arranged to deluge all parts of the body and the quick-acting swing gate which operates the shower automatically.

Skin Cleansers 209
Lightfoot Schultz Co. This 4-page illustrated bulletin tells why the Lightfoot granulated skin cleansers are preferred by purchasing agents, safety directors, doctors, plant maintenance engineers, and chemists. The bulletin describes eight types of powdered soaps with suitable areas of application, and also gives data on bar and liquid soaps and on a new soap dispenser.

BUILDING MAINTENANCE

Non-Skid Gratings & Treads 210
Bustin Firm Grip Grating Corp. Complete specifications for various types of gratings and stair treads with serrated edges are given in this 4-page bulletin, which also outlines the safety features of these metal gratings even in greasy, wet, snowy, or gummy working conditions.

Safety Floor Maintenance 211
Walter G. Legge Co., Inc. The safety, appearance and economy of the Legge system of floor maintenance are emphasized in this ready reference folder of the company's products. Included are brief descriptions of their floor cleaners, polishes, seals, damp sweep tool and floor machines. Of particular interest also are conductive floors and anti-static devices, a slip-resistant powder for sprinkling on wet floors, and a non-skid resurfacing mastic.

Safety Enamel 212
Kelley-Mahorney Co. A 4-page bulletin describes a flooring paint that contains abrasive particles for the slip-resistant surfacing of wood, concrete, metal, brick, stone, etc. The paint is available in various colors, may be applied with a brush and requires no mixing.

ELECTRICAL EQUIPMENT

Connectors & Installation Tools 213
Burndy Engineering Co., Inc. Solderless electrical connectors designed to terminate or join wires and cables are described with full specifications in a 24-page catalog. Also included are numerous types of tools for the quick and easy installation of the connectors.

D. C. Insulation Testers 214
John Hewson Co. This 1-page bulletin pictures and describes high-voltage DC insulation test instruments. By means of these bench and portable devices, electrical equipment insulation can be tested under operating conditions and weaknesses found before the breakdown occurs.

Fluorescent Lamp Lock 215
Edison Electrical Co. Fluorescent lamp replacement is facilitated and the danger of falling lamps eliminated by use of a combination guide and lock, according to this 2-page bulletin. The device snaps onto any standard socket, guides the lamp pins into place, and holds the lamp securely.

Explosion-Proof Motor Controls 216
Arrow-Hart & Hegeman Electric Co. An 8-page folder illustrates and describes a new line of "Explo-Safe" and weatherproof motor starters for hazardous locations, several approved by U.L. The folder gives complete data including dimensions, weights, ratings and wiring diagrams for these magnetic across-the-line starters, which are said to be smaller and lighter than usual types.

EXPLOSIVES HANDLING

Quarry Blasting 217
Atlas Powder Co. Well illustrated with photographs and drawings, this 16-page manual outlines the milli-second delay method of blasting for better efficiency, breakage, control of throw and safety, and for less backbreak, noise and vibration. Various detonation patterns are shown, as well as information about the equipment necessary for this method of quarry blasting.

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"Wonder Drugs", 76 Apr.
Wood, dust, 64 Mar.
Wool, dust, 64 Mar.
Wooster Brass Co., Fyr-Fyter Owner to Control, 83 Apr.
"Work Injuries Rise", 18 Feb.
Workmen's Compensation and Claims Administration, 68 May
Workmen's Compensation Legislation in 1951, 66 June
"World Health Day", 69 May

"You Can't Afford To Be Without Safety", 50 June
"Your Plant a Target?", booklet, 45 Jan.
"Your Troubles Can Be Behind You Too", safety poster, 23 June

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SAFETY FIRST
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CAUTION
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